Plate A

A View of the several Lines & Gauge-points upon Everards Sliding Rule, as it is now improved by C. Leadbetter

Plate A

The Faces of the Rule.

This Face of the Rule is for finding all manner of Proportions; for Gauging Malt, also for measuring all manner of Square Bodies, Viz.t Timber, Stone, &c.a. See it explained on Page 27

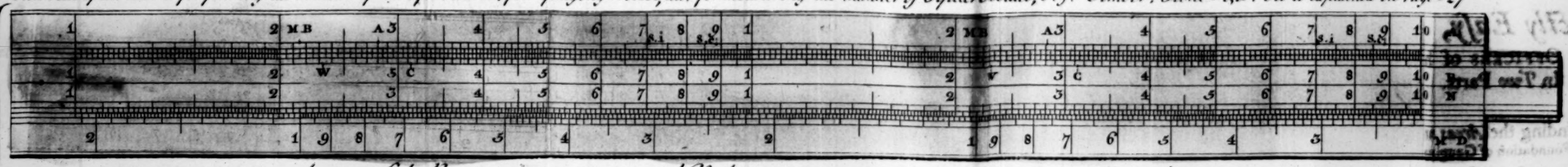


Fig. 1

This face of the Rule is for extracting the Square & Cube Roots, for Gauging all Sorts of Vessels and Casks; Also for measuring all manner of Round Bodies Viz. Timber, Stone &c. See it explained on Page 28

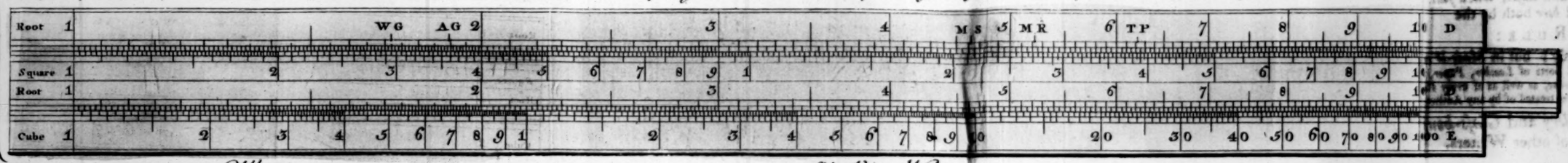


Fig. 2

The Edges of the Rule.

This Edge of the Rule is for Ullaging of Vessels or Casks, i.e. for finding exactly what Quantity of Ale, Beer, Wine &c. remains, after any Part has been drawn off. See it explained on Page 29

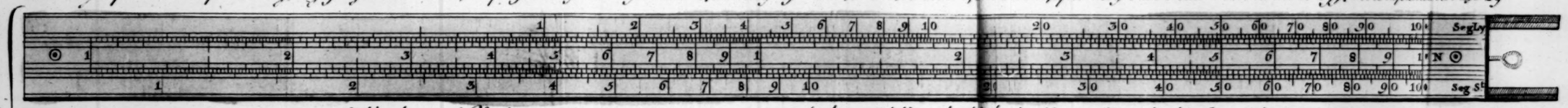


Fig. 3

This Edge of the Rule is for reducing to a Cylinder all Vessels or Casks which are of the form of a Spheroid, Parabolic Spindle, or a Parabolic Conoid. See it explained on Page 29

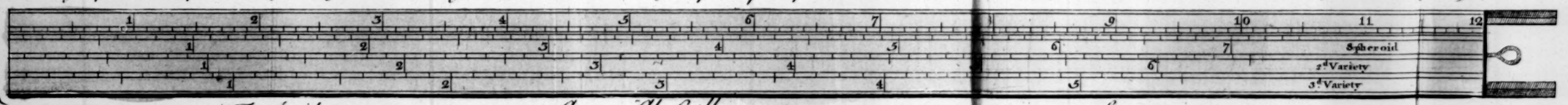


Fig. 4

The Inside of the 3 Sliders.

The Inside of these two Sliders shew the Area in Ale-Gallons of all Diameters from 13 to 36 Inches; the Larger Figures a-



Fig. 5

-bove the Line of Inches signify Gallons, and the Smaller Figures Tenth Parts of a Gallon. See them Explain'd on Page 29. & 30

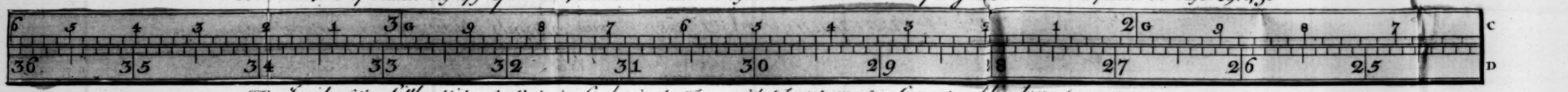


Fig. 6

The Inside of the Little Slider for Reducing Casks in the Form of the Frustum of a Cone to a Cylinder. See it explain'd on Page 30

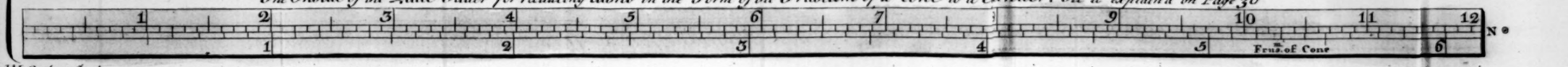
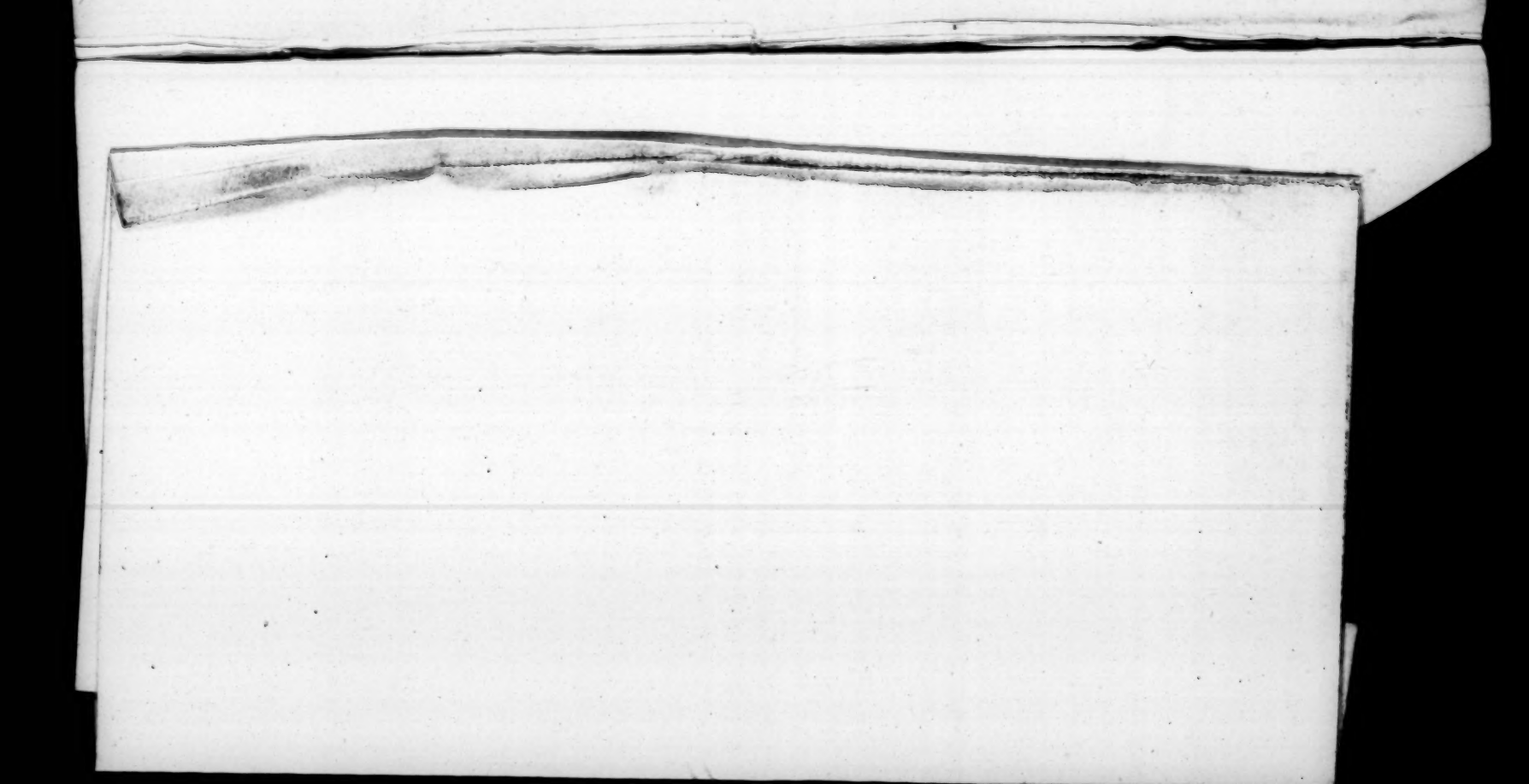


Fig. 7

W. Carter Sculp



THE ROYAL GAUGER; OR,

Gauging made Perfectly Easy,

As it is actually practiſed by the OFFICERS of his Majeſty's Revenue of *Exciſe*. In *Two* Parts.

PART I.

Containing the *practical* Methods of finding the *Areas* and *Contents* of ſuch *Superficies and Solids*, as are the Foundation of Gauging.

Alſo the *Eſtabliſhed* Rules for finding the *Contents* of ALL SORTS of *Ciſterns, Coppers, Backs, Coolers, Tuns, Stills* and *Caſks*, when *full*, or *Part empty*: The Examples being performed *here* both by the

PEN AND SLIDING RULE:

And this not in *Ale, Beer, Wine* and *Malt* only; but in *Made-Wines, Soap, Starch, Candles, Hops, Coffee, Tea, Chocolate*, all Sorts of *Leather, Paper*, &c. which have been very conſiderable Branches of the *Revenue*, as well as of every *Exciſe Officer's Duty* for above *Forty* Years paſt, though yet never treated of by any Author.

With the *Officer's* Duty in the *Diſtillery* and *Glaſs-houſe*: Freed from the *Obſcurities* and *Errors* of other Writers.

PART II.

Shewing all the neceſſary Steps to be taken for obtaining *Employment* in the *Exciſe*, with *authentic* Forms of ſuch *Certificates, Petitions, Oaths*, &c. as are requiſite for that Purpoſe.

Together with

Such Directions for the Officer's *Conduct*, as are neceſſary for *aſcertaining* and *ſecuring* the *Duties*, to which the reſpective *Traders* are ſubject; and *very advantageous* to thoſe *Traders*, who are deſirous to aſcertain the *Amount* of *their* reſpective *Duties*, without entirely depending upon the *Skill* and *Integrity* of the *King's Officer*.

To which is added,

Caſk-Gauging, &c. as practiſed in the *Port* of *London*.

The Whole illuſtrated with many *New Copper-Plates* adapted to the Subject.

The FIFTH EDITION, *very much enlarged and improved.*

For the Benefit of *Young Officers*, from the Valuable and Authentic *Manuſcripts* of a COLLECTOR; and of Mr. *John Downer* and Mr. *Joſeph Boſley*, GENERAL SURVEYORS of the *London* Diſtillery, lately deceaſed.

By *CHARLES LEADBETTER.*

Many Years a Gauger *in the Royal Revenue of* Exciſe.

LONDON:

Printed (by Aſſignment from the Executors of *Edward Wickſteed*) for C. HITCH and L. HAWES, R. BALDWIN, J. RICHARDSON, H. WOODGATE and S. BROOKS, J. COOTE, and Z. STUART, in *Pater-noſter-Row*; W. JOHNSTON, in *Ludgate-Street*; S. CROWDER and Co. *London-Bridge*; B. LAW, in *Avemary-Lane*; and T. CASLON, oppoſite Stationers Hall. 1760.

1609/5490.

OF HIS

MAJESTY'S Royal Revenue

OF

EXCISE,

(Who are the beſt Judges of the Subject here treated)

AND ALSO TO THE

BREWERS, MALTSTERS, DISTILLERS,

OF

GREAT BRITAIN,

The following

TREATISE

OF

GAUGING

Is Humbly inſcribed,

BY

Their Faithful

And Obedient Servant

Charles Leadbeater.

15 OCT 73

TO THE

OFFICERS

OF HIS

MAJESTY's Royal Revenue

OF

EXCISE,

(Who are the beſt Judges of the Subject here treated of;)

AND ALSO TO THE

BREWERS, MALTSTERS, DISTILLERS, *&c.*

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GAUGING

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BY

Their Faithful

And Obedient Servant,

Charles Leadbetter.

To the READER.

SINCE GAUGING is one of the *moſt uſeful* Branches of the *Mathematicks*, and as the Author has had the Credit of an Employment under *the Honourable the Commiſſioners of his Majeſty's Royal Revenue of Exciſe*, He preſumes that his *Brother Officers* will expect no Apology for the preſent Undertaking. For,

The Compiler of the following Sheets, far from taking a malicious Satisfaction in laying before the World the *Errors* and *Defect* of the Treatiſes already extant upon the Subject of *Practical* Gauging, rather chuſes to join with thoſe, who have long complained, that an uſeful and general Treatiſe, relating to the Buſineſs of a *Gauger in the Exciſe*, has been extreamly wanted, which ſhould treat of thoſe Matters, after a *natural* and *authentic* Manner.

Every Officer of Experience, who has had the forming of *Probationers* for the Exciſe, muſt know, that the greateſt Difficulty to bring *Pupils* to conſider thoſe Things, which are to be the Subject of their future Conduct, in a proper Light, is owing to their having imbibed wrong Notions from the incoherent Inſtructions of *Blind Guides*; but this Difficulty, the Author apprehends, will be removed for the future, by Means of the enſuing Treatiſe; as every *Writing-Maſter* and *Accomptant* may *now* eaſily acquire ſuch an Inſight into the REAL Buſineſs and Duty of an Exciſe Officer, as muſt greatly tend to the Scholar's Advantage.

As ſome Writers have attempted to perſuade the Publick, that *Tables* ready calculated are far more *exact* and *ready* in *Practical Gauging*, than the *Sliding Rule*; it may not be here amiſs to obſerve, That if *Tables* happen to be falſe printed, as we frequently find moſt *Tables* are, the *Officer* muſt act at random, not knowing whether he is *right*, or *wrong*: Whereas, by the *Sliding Rule*, 'tis impoſſible he ſhould ever *err*; for the Uſe of *that* Inſtrument being but once well underſtood, which by the Directions given in the following Treatiſe, it very eaſily may; *the Officer* with the greateſt Diſpatch and

Cer-

Certainty, may, on all Occaſions, come to the Exactneſs of the *tenth Part* of an *Unit*, which is as near as is ever required in Practice in the Exciſe, and therefore the Author is perſuaded, that thoſe who have taken the moſt Pains to decry the *Sliding Rule*, are *truly ignorant* of its Excellency and Uſe.

To thoſe who underſtand how far the *Operations* in *Diviſion*, if ſet down at large, would have extended this Treatiſe, and of how little Service they would have been to the Reader, there needs no Excuſe for omitting them.

Being ſenſible that the Officers of Exciſe have little Leiſure to apply their Minds to the *Speculative Part* of *Geometry*, for that Reaſon the *Demonſtration* of ſome of the *Rules* are omitted.

For, notwithſtanding the unneceſſary Noiſe and Buſtle ſome Gentlemen have made of late about *Algebra* and *Fluxions* *, it is preſumed no conſiderate Perſon, converſant in the *practick*

* The Rev. Dr. *Iſaac Watts*, a *Gent.* long diſtinguiſhed for his great *Candor* and *good Senſe*, having treated theſe Matters with a becoming Freedom and Judgment, (in his late Treatiſe of *The Improvement of the Mind, Part I. Chap.* XX.) I ſhall here give the Reader *an Extract* of ſome Part of it.

'Though I have ſo often commended *Mathematical Studies, (ſays the Doctor,)* and particularly the Speculations of *Geometry*, &c. as a Means to fix a wavering Mind, to beget an Habit of Attention, and to improve the Faculty of Reaſon; yet I would by no means be underſtood to recommend a Purſuit of theſe Sciences, to thoſe extenſive Lengths to which *ſome Moderns* have advanced them, this is neither neceſſary nor proper for any Man, but thoſe few who ſhall make theſe Studies their *Profeſſion* and *Support*.

'The general Principles of *Algebra*, *Geometry*, &c. have their valuable and excellent Uſes, but a Penetration into the abſtruſe Difficulties and Depths of modern *Algebra and Fluxions*, the various *Methods* of *Quadratures*, the *Menſuration* of all Manner of *Curves*, and their mutual *Tranſformation*, and twenty other things that *ſome* modern *Mathematicians* deal in, are not worth our Attention. And this is the Sentence of no leſs a Man than Dr. *George Cheyne*, who was a very good Proficient and Writer on theſe Subjects: He has not only affirmed, "That they are barren and airy Studies for a Man to ſubſiſt upon; but he has alſo had the "Ingenuity to own this great but grievous Truth, *viz.* That though they may quicken and "ſharpen the Invention, ſtrengthen and extend the Imagination, improve and refine the Rea-"ſoning Faculty, and are of uſe both in the neceſſary and the luxurious Refinement of *mecha-"nical* Arts; yet having no Tendency to rectify the Will, to ſweeten the Temper, or mend "the Heart, they often leave a *Stiffneſs*, a *Poſitiveneſs*, and *Sufficiency* on weak Minds, which "is much more pernicious to Society, than all their Advantages can recompence." He adds, further, concerning the launching into the Depth of theſe Studies, "That they are apt to be-"get a *ſecret* and *refined* PRIDE, an *over-weening* and *over-bearing* VANITY, which "tempts their Admirers to preſume on a kind of *Omniſcience*, in reſpect to their Fellow "Creatures, who have not riſen to their Elevation: nor are theſe Studies fit to be truſted in "in the Hands of any but thoſe who have acquired an *humble* Heart, a *lowly* Spirit, and a *ſober* "and *teachable* Temper, &c."

See The Preface to an *Eſſay on Health and long Life.* By *George Cheyne*, M. D. R. C. Ed. and R. S. S. *viz. Doctor of Phyſick of the Royal College at* Edinburgh, *and Fellow of the* Royal Society.

Part of the *Exciſe*, let him be ever ſo fond of thoſe *Speculations*, can ſee any Reaſon to expect they will ever be *injoined* as a *neceſſary* Qualification for the Officers employed in that Branch of the Revenue.

The *Rationale* and *Progreſs* of the *Exciſe* ſeeming little underſtood, let it therefore be obſerved, as to its *Riſe*, That tho' by the *Law of Nature* all things were originally common, and all Perſons equal, there being then neither *King* nor *Subject*; yet when the *Law of Nature* came to be limited, and *Property* claimed, *Kings* or Rulers became abſolutely neceſſary to maintain and defend ſuch *Property*, (by which I mean *Life*, *Liberty*, and *Eſtate:)* And in order to ſupport thoſe *Kings* or Rulers in their Government, and to defray the Expences, which they muſt inevitably be at, in protecting the Publick, and adminiſtring Juſtice to every Member, *Taxes* and *Duties* were granted them by *the People*. And as to the *Reaſonableneſs* and *Juſtice* of ſuch Demands of *Duties* or *Taxes* by the *Prince*, and the *Obligation* to a ready and chearful Obedience and Compliance in the Payment thereof by the *Subject*, there is no leſs *Teſtimony* and *Authority* than the *Holy Scriptures*.

How provoking therefore muſt their Conduct be before *God, and all reaſonable Men*, who are ſo perverſe as to offer Inſults and Indignities to the Perſon of the *King's Officer*, and are eternally on the Watch, for Opportunities to render him contemptible and odious to the World? Such Men ſeem ignorant, that though the *Exciſe Duties* are made payable to the *King*, and are collected *in his Name*, yet only a very ſmall Part thereof is applied to his *own* Uſe, while the much greater Share, as *nine Parts in ten* thereof are appropriated to diſcharge the *National Debts*; which, until paid, remain an heavy Charge upon the whole Nation in general.

Many judicious and ingenious Gentlemen, who have been acquainted with the *Buſineſs* and *Revenue* of the *Exciſe*, have been under the greateſt Aſtoniſhment, that ſince they have the Laws of the Land for their Foundation, and are managed in all their Branches with the greateſt Prudence and Oeconomy, that they have hitherto been ſo little underſtood by *Manufacturers* and

and *Traders*: But in Anſwer to this, the Buſineſs of the *Cuſtoms* long remained in the ſame Situation, to the great Trouble of the reſpective Officers, and the extream Diſſatisfaction of the *Subject*; and after ſeveral Attempts, the *Laws* and *Buſineſs* relating to that Branch of the Revenue have been reduced to *Method*, and the *Veil withdrawn**, to the great Improvement of that Branch of the Revenue, the Eaſe of the Officer, and the entire Satisfaction of every honeſt and well-meaning Subject.

The Author having been frequently applied to when he was in the Exciſe, as well as ſince, to adjuſt Differences relating to meaſuring *Marl-Pits* and *Cord-Wood*, he has been tempted to ſay ſomething upon thoſe Heads; and hopes the Reader, who thinks it foreign to the Subject, will excuſe him for ſo doing.

The Charges of this FIFTH *Impreſſion* ariſing not only from the *Smallneſs* of the *Letter*, the *Goodneſs* of the *Paper*, the *Graving*, *Painting*, &c. are Articles which, we think, at firſt Sight, cannot leave any judicious Purchaſer (who reads the following *Poſtſcript*) the leaſt Reaſon to complain, *that he has not a* Pennyworth *for his* Penny.

POSTSCRIPT,

Concerning the *Improvements* made to the *Several Editions* of the ROYAL *Gauger*.

FOR the *valuable* Additions and Improvements, made to the SECOND Edition of the *Royal Gauger*, and which have enlarged it *above one Fourth*, the Public are obliged for moſt of them to the Papers of a *Collector*, and *General Surveyor*, both lately *deceaſed*. The latter was that able and experienced Officer, Mr. *John Downer*, General Surveyor in the *Diſtillery* of *London*†. But we have not obtained Leave to mention the *Name* of the *Collector*, who drew up thoſe Papers, intitled,

* See *A Complete View of the* Britiſh *Cuſtoms*, by Mr. *Crouch*, containing, *inter alia*, the Rules, Orders, Directions, Allowances and Regulations, *&c.* relating to the Buſineſs of the Cuſtoms.

† Mr. *John Downer* (as we are credibly informed) was born at *Southampton*. He was *forty-ſix Years* an Officer in the Exciſe: The firſt *ſixteen* Years he officiated at *Briſtol*, and other Places in the *Country*; but he was found ſo valuable an Officer, that the laſt *thirty Years* he

The Riſe and Progreſs of the Exciſe, and the APPENDIX *relating to Proſecutions*. Whoever peruſes the APPENDIX with a ſerious Attention, will find *the Officer's* Duty ſo tempered and counterbalanced, by a judicious Regard and Tenderneſs for the Welfare of *the Subject*, as is rarely to be met with. And from thence it will likewiſe plainly appear, that the *Author*'s uncommon Underſtanding and Diſcernment in the Buſineſs of his Profeſſion, had no pernicious Influence upon his *Religion* or *Morals*.

Concerning the THIRD *Edition.*

THE Reader may be aſſured, that the *Additions and Improvements* made to the *Third* Edition are *valuable* and *many*: And we have Permiſſion to ſay, that for thoſe referred to in the NEW *Plate* N° VI. (facing *Page* 152) the Public are indebted to the *Experience* and *Accuracy* of the late Mr. *Joſeph Boſley* *, General Surveyor of the *London Diſtillery*, near 30 Years, whoſe great Talents and Integrity will undoubtedly render his Memory for every truly valuable to every Gentleman of the ſame Profeſſion.

Con-

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he was moſtly employed in *London*: When the *Union* between the two Kingdoms took place, *Anno* 1707, by the ſpecial Appointment of *the Honourable Commiſſioners*, he went down *Methodizer* of the Excife in *Scotland*, where he continued near two Years; and having faithfully diſcharged that important Truſt with great Judgment and Moderation, he returned to *London*. He *died* the 24th of *November*, 1739, and was buried on *St. Andrew's Day*, (which was his *Birth-Day*,) in *St. George's* Church-Yard, *Radcliff-Highway*, as appears by the following *Certificate*.

"THIS *is to certify whom it may concern, that* John Downer, *Gent. of the Pariſh of* St. "George, Middleſex, *was buried at the ſaid Pariſh-Church, on the* thirtieth *Day of* No- "vember, 1739, *as appears from the* Regiſter-Book *belonging to the ſaid Pariſh.*

"Witneſs my Hand this *thirteenth* Day of *April*, 1742.

"WILLIAM SIMPSON, *Curate* and *Regiſter.*

* Mr. *Joſeph Boſley* was born at *Hungerford*, in *Berkſhire*, in the Year 1671. In the Year 1704, he was appointed a *Surveyor* in the *London Diſtillery*; and ſome Time after, by the ſpecial Appointment of *the Honourable Commiſſioners*, he went down *Inſpector* and *Methodizer* of the Exciſe to *Briſtol*, and there reſided about *two* Years; when having diſcharged that important Truſt with great Judgment and Integrity, he was recalled to *London*, and appointed an *Examiner* in the *London Diſtillery*; and ſoon after (in Juſtice to his great Abilities) *their Honours* were pleaſed to appoint him *General Surveyor* of the *London Diſtillery*, which Poſt he enjoyed to the Day of his Death. And we ſhould be highly *unjuſt* to his *Merit* and *Memory*, if we did not refer the Public to his *ſurviving Co-temporaries* in the Exciſe, for his not only *having*, but for his *deſerving* the Character of the *moſt accompliſhed* PRACTICAL Gauger then living. He *died* of *the Stone*, the 5th of *November* (which was his *Birth-Day*,) in the Year 1737, *aged* 66, and was buried in St. *James's* Church-Yard, *Clerkenwell*, as appears by the following Certificate.

"THIS *is to certify whom it may concern, that* Joſeph Boſley, *Gent. of the Pariſh of* "St. James's, Clerkenwell, *in the County of* Middleſex, *was buried at the ſaid Pariſh-* "*Church, on the* twentieth *Day of* November, 1737, *as appears by the* Regiſter-Book *belonging* "*to the ſaid Pariſh.*

"Witneſs my Hand this *Fourteenth Day* of *September*, 1749.

ARCHIBALD CAMPBELL, *Curate* and *Regiſter.*

Concerning the FOURTH *Edition.*

THE Reader will here find ſeveral *uſeful* ADDITIONS and IMPROVEMENTS; particularly in Regard to IRREGULAR *Figures:* And in finding the *Areas* of *ſuch* Figures the greateſt Difficulty in Gauging conſiſts. The young Gauger is here ſupplied with Inſtructions ſo plain and obvious as will enable him, with eaſe, to find the *Content* of any Figure how *irregular* ſoever.——The Methods of taking *accurately* the Dimenſions of CASKS, and of determining the *true* Variety to which *each* belongs, are alſo delivered in the moſt conſpicuous Manner.——The Officer's Duty relating to the Exciſe on GLASS is likewiſe now inſerted; and every Step neceſſary to be taken in that Branch of the Revenue ſet in its proper Light.

Concerning this FIFTH *Edition.*

THE Reader will find this Edition much more correct than any of the former; and many Additions inſerted in their proper Places, throughout the whole Work; particularly the Alterations that have been lately made in the Duties of ſeveral Commodities ſubject to the Laws of Exciſe.——In ſhort, nothing has been omitted to render this New Edition of the ROYAL GAUGER *complete.*

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Since I could not in this Treatiſe well avoid ſometimes making uſe of the common Algebraic Signs, *or* Characters, *I ſhall here explain them.*

Signs Names.

\+ *More* — Is the Sign of *Addition*, as 7 + 3 is 7 *more* 3, and ſignifies that the *Numbers* 7 and 3 are to be *added* into one Sum: The like is to be underſtood where ſeveral Numbers have this Sign betwixt them; as 23 + 7 + 91 + 5, *&c.* denotes that theſe Numbers are all to be *added* into one Sum.

— *Leſs* — Is the Sign of *Subtraction*, as 8 — 3 is 8 *leſs* 3, and ſignifies that 3 is to be *taken from* 8, that their Difference may appear.

× *Into* — Is the Sign of *Multiplication*, as 8 × 3 is 8 *into* 3, and ſignifies that 8 is to be multiplied *into*, or *with* 3.

÷ *By* — Is the Sign of *Diviſion*, as 9 ÷ 3 is 9 *by* 3, and ſignifies that 9 is to be *divided* by 3.

= *Equal* — Is the Sign of *Equality*, as 8 = 8; or 8 + 4 = 12; or 8 — 4 = 4, *&c.* that is 8 is *equal* to 8, and 8 *more* 4 is *equal* to 12, and 8 *leſs* 4 is *equal to* 4.

: : — Is the Sign of *Proportion*, and : : is always placed betwixt the *two middle* Numbers in *Proportion*, or the *Golden Rule* or *Rule of Three*; thus 3 : 6 : : 4 : 8, which muſt be read thus, *as* 3 *is to* 6, *ſo is* 4 *to* 8.

□ *or q* — Is the Sign that the Number to which it is joined, is *ſquared*: As in *Pages* 89, 166.

□✓ *Square Root.*

Directions for Binding the ROYAL GAUGER.

Concerning the VOUCHERS.

1. THIS *Half-Sheet* muſt be cut in two; and the *Ale* and *Beer* VOUCHER muſt face the *Ale* and *Beer* ABSTRACT on *Page* 227.
The *Malt* VOUCHER muſt face the *Malt* ABSTRACT on *Page* 229.

☞ Theſe *Vouchers* (after a *Guard* is taken out *from the Right-Hand)* muſt be folded up, to be *a little longer*, but *no broader* than the printed Page, *including the Notes*; and, if this is not done with ſome Care, the *Indorſements* will ſtand *awry*. *N. B.* The Edges at the *Left-Hand*, and *Bottom*, ſhould be cut even before you fold them.

Of placing *and* ordering *the* CUTS.

2. When you have allowed to *Plate* A (which is *to face* the Title) a *Guard* to faſten it to the Sheet, if you have more *blank* Paper to the *Right-Hand* than will juſt allow the Plate, when open, to lie clear of the Book, cut it off; for the *Blank* is only left that no Part of the Plate, when *unfolded*, may be hid by the Leaves of the Book: This, and the other *colour'd* Plate, ſhould not be put into the Book till after the Book has been *beat*; but they muſt be put in before it is *preſſed*. Since *Dampneſs* will be apt to make theſe *colour'd* Plates ſtick together, and alſo to the Book, Care ſhould be taken, when the Book is *covered* or *paſted down*, to put ſome Folds of Paper betwixt the *Cover* and the *Plate* A; and the leſs Time the Book ſtands in the Preſs (till after the Paper paſted down *at the Beginning* is dry) the better.

3. The *blank Paper* to Plates 1, 2, 3, 4, 5, and VI. ſcarce allowing them to lie out of the Book when *unfolded*, you muſt make your *Guards* to faſten them to the Back the narrower. There's little or nothing can be cut off the *Heads* of theſe *Six* Plates, without making them too *ſhort at the Bottom*.

☞ *Plate* { 1, 2, VI., 3, 4 *and* 5. } To *fold out facing* Page { 65, 114, 152, 178, [216] } of the FIRST *Part*.

4. From the Nature of ſome of the *Tables*, it could not be avoided but ſome Pages muſt be printed much *broader*, and others much *longer* than the reſt of the Book, particularly in the Sheets I and U, and therefore the Book muſt not be cut too near.

5. The End of the *firſt* Part, *Pages* [217] and [218], muſt be cut off from the Beginning of the Sheet H h.

6. The *laſt* Leaf of the *Contents* (which is printed *on the Back* of theſe Directions, and muſt be paſted to *the End* of the Sheet A) *cuts* off the *End* of the *Sheet* H h.

THE

Royal Gauger.

PART I.

CHAP. I.

NOTATION * of *Decimal Fractions* †.

NOTATION of DECIMALS is different from that of *Whole Numbers*; for whole Numbers *increaſe* from the *Right* Hand towards the *Left* in a *tenfold* Proportion from *Unity* or one; and *Decimals decreaſe* from *Unity*, in the *ſame Proportion* from the *Left* Hand towards the *Right*: The following Table makes this evident.

Unite	1.	Unites one *Integer*.
Primes	.1	One Tenth Part of the *Integer*.
Seconds	.01	One Hundredth Part.
Thirds	.001	One Thouſandth Part.
Fourths	.0001	One Ten Thouſandth Part.
Fifths	.00001	One Hundred Thouſandth Part.
Sixths	.000001	One Millionth Part.
Sevenths	.0000001	One Ten Millionth Part.
Eighths	.00000001	One Hundred Millionth Part.
Ninths	.000000001	One Thouſand Millionth Part.

So that *Decimal Fractions* are of ſeveral *Denominations* or *Names*, as *Primes*, *Seconds*, *Thirds*, &c. and becauſe the *Denominator* is always 1, with as many *Cyphers* annexed as there are *Decimal Places*; for this Reaſon the *Numerator* or *Decimal* is always wrote alone without the *Denominator*; ſo if I would expreſs *Twenty-five Hundred Parts* of any Thing, which *vulgarly* ſtands thus $\frac{25}{100}$, becauſe the *Denominator* is 1, with as many *Cyphers* prefixed as there are *Decimals* or Places in the *Numerator*, it is always expreſſed thus .25; and $\frac{123}{1000}$ thus .123, and $\frac{5382}{10000}$ thus .5382, *&c.* And becauſe *Vulgar Fractions* are the *Foundation* of *Decimals*, it is neceſſary to ſhew how to REDUCE a *Vulgar Fraction* to a *Decimal*.

* *Notation* or *Numeration* in Arithmetick is the true Diſtinction, Eſtimation, and Pronunciation of Numbers; or the Rule to read any Number, tho' never ſo great, and to have a diſtinct Idea of each Place or Figure of it.

† *Note*, Becauſe the *Sliding Rule* is calculated for *Decimal Fractions*, it is requiſite the Learner be made acquainted therewith before he proceeds to uſe the Rule itſelf.

CHAP. II.

* Reduction of *Decimal Fractions.*

1. TO reduce a *Vulgar Fraction* to a *Decimal Fraction.*

The RULE.

Annex *to the* Numerator *of the given Vulgar Fraction any Number of* Cyphers *at pleaſure, and* divide that Sum *by the* Denominator, *the* Quotient *is the* Decimal *equal to the given* Vulgar Fraction.

For as
The *Denominator* of the given *Vulgar Fraction*
Is to the *Numerator*,
So is an *Unite*, with *ſo many* Cyphers annexed, as you intend your *Decimal* ſhall have *Places*,
To the *Decimal* required.

See theſe *Examples*, and mark them well.

1. *Reduce* $\frac{1}{4}$ to a *Decimal.*

4)1.00(.25

2. *Reduce* $\frac{1}{2}$ to a *Decimal.*

2)1.0(.5

3. *Reduce* $\frac{3}{4}$ to a *Decimal.*

4)3.00(.75

4. *Reduce* $\frac{11}{80}$ to a *Decimal.*

80)11.0000(.1375

See Plate A, *Fig.* 1.

N. B. The firſt *Example* is wrought thus by the *Sliding Rule.* Set 4 upon B, to 1 upon A, and *againſt* 100 upon B, is 25 upon A, the *Decimal* ſought.

Or,

Set 4 upon A, to 1 upon B, and *againſt* 100 upon A, is ,25 upon B, as before: But I ſhall explain this more at large, when I come to treat of the *Sliding Rule.*

2. To *reduce* a *Compound* Vulgar Fraction to a *Decimal.*

Example 1. Reduce $\frac{2}{3}$ of $\frac{3}{5}$ of $\frac{1}{8}$ to a *Decimal.*

Firſt, Reduce them to a *ſingle* Fraction, by *multiplying* all the *Numerators together*, for a *new* Numerator, which make 30; *2dly*, All the *Denominators* multiplied together, make 120; which placed under the other is this *ſingle Fraction* $\frac{30}{120}$, or $\frac{1}{4}=\frac{1}{4}$, whoſe *Decimal* will be found .25 as before.

Example

* We ſuppoſe the Reader to be acquainted with the *four* firſt Rules of Vulgar Arithmetick; for which Reaſon we place Reduction before Addition; tho' ſome Proficients in Decimals place Reduction after Diviſion.

Example 2. *Reduce* $\frac{1}{4}$ of $\frac{1}{2}$ of $\frac{3}{4}$ of any Thing to a *Decimal Fraction.*

By the Directions above I find it to be this *ſingle Fraction* $\frac{3}{32}$.

32)3.00000(.09375
....

Note, In *every Quotient* that ariſes in finding a *Decimal Fraction,* there muſt be *as many Decimal Places* as you *annex Cyphers* to the *Numerator* of the given *Vulgar Fraction*; and what Places *fall ſhort* muſt be ſupplied by *prefixing* Cyphers to the *Left*-Hand of the *Decimal.* Thus in the *Example* above, there is *one* Cypher *prefixed* on the *Left*-Hand of the *Quotient* 9375; ſo that the true Quotient or *Decimal* is .09375.

In finding the Decimal of *Money, Weights, Meaſures, Time, Motion, &c.* you muſt *reduce* what you are ſeeking the *Decimal* of, into the *loweſt Name* mentioned, and divide by what you deſign for the *Integer* reduced into the *ſame* Name; and the *Quotient* thence ariſing is the *Decimal* ſought.

Example 1, in *Engliſh Money.*

Q. What's the *Decimal* of 1 *s,* a *Pound* being the *Integer?*

A. It is this Vulgar Fraction $\frac{1}{20}$.

20)1.00(.05
.

Example 2.

Q. What's the *Decimal* of 1 *d,* a *Pound* being the *Integer?*

A. It is this *Compound* Vulgar Fraction $\frac{1}{12}$ of $\frac{1}{20} = \frac{1}{240}$.

240)1.00000000(.00416666
.....

Example 3.

Q. What's the *Decimal* of 1 *Farthing,* a *Pound* being the *Integer?*

A. It is this *Compound* Vulgar Fraction $\frac{1}{4}$ of $\frac{1}{12}$ of $\frac{1}{20} = \frac{1}{960}$.

960)1.00000000(.00104167
.....

After the above Manner, is the common *Decimal-Table* of *Money* calculated in moſt Books treating of *Decimals.*

Thus if you require to find the *Decimal* of 12*s.* 9*d.* $\frac{1}{2}$, a *Pound* being the *Integer,* the Work will ſtand thus:

s.	*d.*
12	9 $\frac{1}{2}$
12	
153	
4	

960)614.00000000(.63958333
.....

Of Troy Weight.

oz. pw. gr.

Q. What's the *Decimal* of 9 12 20, a *Pound Weight* being the *Integer?*

Operation.

oz. pw. gr.
9 12 20
20

192
24

768
386

4628 *Grains* being *divided* by 5760, the *Grains* in *one Pound Troy*, the *Quotient* will be .803472 the *Decimal* ſought.

Of Apothecaries Weight.

The Denominative Parts are *Pounds, Ounces, Drachms, Scruples, Grains.*

That is, 20 *Grains* make *one* Scruple, 3 *Scruples* make *one* Drachm, 8 *Drachms* make *one* Ounce, and 12 *Ounces* make one *Pound.*

oz. dr. ſcr. gr.

Q. What's the *Decimal* of 10 6 1 12, a *Pound* being the *Integer?*

8

86
3

259
20

5760)5192.000000(901371
.....

Of Avoirdupoise Weight.

The Denominative Parts are *Tuns, Hundreds, Quarters, Pounds, Ounces, Drachms.*

That is, 16 *Drachms* make *one* Ounce, 16 *Ounces* make *one* Pound, 28 *Pounds* make *one* Quarter of a Hundred, 4 *Quarters* make *one* Hundred, and 20 *Hundreds* make *one* Tun.

C. qr. lb. oz. dr.

Q. What's the *Decimal* of 16 2 20 12 10, a *Tun* being the *Integer?*

A. Theſe

c. qr. lb. oz. dr.

A. Theſe 16 2 20 12 10 *reduced* into *Drachms* are 478410, which *divided* by 573440, the *Drachms* in a *Tun Weight*, gives in the *Quotient* .8342808 the *Decimal* ſought.

Of Wine-Measure.

☞ By this Meaſure all diſtilled ſpirituous Liquors, Oil and Cyder are meaſured.

The Denominative Parts are *Tuns*, *Butts* or *Pipes*, *Hogſheads*, *Gallons*, *Pottles*, *Quarts*, *Pints*.

That is, 28 $\frac{7}{8}$ *Cubic Inches*, are *one* Pint, 2 *Pints* make *one* Quart, 2 *Quarts* make *one* Pottle, 2 *Pottles* make *one* Gallon, 63 *Gallons* make *one* Hogſhead, 2 *Hogſheads* make *one* Pipe or *Butt*, 2 *Pipes* or *Butts* make *one* Tun.

p. h. g. p. q. p.

Q. What's the *Decimal* of 1 1 50 1 1 1, a *Tun* being the *Integer?*

A. The given Quantity *reduced* into *Pints* are 1919, which *divided* by 2016 the *Pints* in a *Tun*, the *Quotient* is .951884 the *Decimal* ſought.

Of Ale-Measure *at* London, *and within the Bills of Mortality.*

☞ In the Country the Ale, Beer, ſtrong and ſmall are all one, *viz.* 34 Gallons to the Barrel, and 282 cubic Inches to the Gallon.

The Denominative Parts are *Barrels*, *Gallons*, *Quarts*, *Pints*.

That is 35 $\frac{1}{4}$ *cubic* Inches make *one* Pint, 2 *Pints* make *one* Quart, 4 *Quarts* make *one* Gallon, 32 *Gallons* make *one Barrel*.

g. q. p.

Q. What's the *Decimal* of 29 3 1, a *Barrel* being the *Integer?*

4

119

2

256)239.000000(.933593 *Anſwer.*

.....

Of Beer-Measure *at* London.

The Denominative Parts are *Butts*, *Barrels*, *Kilderkins*, *Firkins*, *Gallons*, *Quarts*, *Pints*.

That is, 2 *Pints* make *one* Quart, 4 *Quarts* make *one* Gallon, 9 *Gallons* make *one* Firkin, 2 *Firkins* make *one* Kilderkin, 2 *Kilderkins* make *one* Barrel, and 3 *Barrels* make *one Butt*.

b. k. f. g. q. p.

Q. What's the *Decimal* of 2 1 1 5 1 1, a *Butt* being the *Integer?*

2
5
2
11
9
104
4
417
2

864)835.000000(.966435 *Answer.*

Of Water Measure.

Water Meaſure is ſo called from meaſuring of *Coals* upon the *River of Thames*, at *London*; and the *Buſhel* by which *Coals* are meaſured, contains 19 ½ *Inches Diameter* from Outſide to Out-ſide, and 8 *Inches deep*, with a plain and even Bottom; and ſuch a *Buſhel* contains 2389.179195 *ſquare* or *cubic* Inches; 36 of theſe Buſhels make *one Chaldron*; 33 *Quarts* make *one Buſhel*, and 2 *Pints* make *one* Quart.

b. q. p.

Q. What's the *Decimal* of 20 27 1, a *Chaldron* being the *Integer?*

A. Theſe reduced into *Pints*, are 1375, which *divided* by 2376 the *Pints* in a *Chaldon*, the *Quotient* is .5787037, the *Decimal* ſought.

Of Dry Measure.

The Denominative Parts are *Laſts*, *Weys*, *Quarters*, *Coombs*, *Buſhels*, *Pecks*, *Gallons*, *Pints*.

That is, 33.6 *cubic Inches* make *one* Pint, 8 *Pints* make *one* Gallon, 2 *Gallons* make *one* Peck, 4 *Pecks* make *one* Buſhel, 4 *Buſhels* make *one* Coomb, 2 *Coombs* make *one* Quarter, 5 *Quarters* make *one Wey*, or Load, 2 *Weys* make *one Laſt*.

w. q. c. b. p. g. p.

Q. What's the *Decimal* of 0 4 1 1 3 0 2, a *Laſt* being the *Integer?*

A. Theſe reduced into *Pints* are 2418, which *divided* by 5120 the *Pints* in a *Laſt*, the *Quotient* is .472265, the *Decimal* ſought.

Of Land Measure.

The Denominative Parts are *Acres*, *Roods*, *Poles* or *Perches*.

That is, 40 *Perches* make *one* Rood-land, 4 *Rood-lands* one *Acre*.

Q. What's

r. *p.*

Q. What's the *Decimal* of 1 10, an *Acre* the *Integer?*

A. Theſe reduced into *Perches* are 50, which divided by 160, the *Quotient* is .3125, the *Decimal* ſought.

Of Long Measure.

The Denominative Parts are *Miles, Furlongs, Poles, Yards, Feet, Inches, Barley-Corns.*

That is, 3 *Barley-Corns* make *one* Inch, 12 *Inches* make *one* Foot, 3 *Feet* make *one* Yard, 5 ½ *Yards* make *one* Pole, 40 *Poles* make *one* Furlong, 8 *Furlongs* make *one* Mile.

f. *p.* *y.* *f.* *i.*

Q. What's the *Decimal* of 0 27 4 2 10, a *Mile* being the *Integer?*

A. Theſe reduced into *Barley Corns* are 16572, which *divided* by 190080 the *Barley-Corns* in a *Mile*, give in the *Quotient* .08718434, the *Decimal* ſought.

Of Yard Measure.

The Denominative Parts are *Yards, Quarters, Nails.*

That is, 4 *Nails* make *one* Quarter, 4 *Quarters* make *one* Yard.

q. *n.*

Q. What's the *Decimal* of 3 1, a *Yard* the *Integer?*

A. Theſe reduced into *Nails* are 13, which *divided* by 16, the *Nails in a Yard*, the *Quotient* is .8125, the *Decimal* ſought.

Of Time.

The Denominative Parts are *Years, Months, Weeks, Days, Hours, Minutes, Seconds.*

That is, 60 *Seconds* make *one* Minute, 60 *Minutes* make *one* Hour, 24 *Hours* make *one* Day, 7 *Days* make *one* Week, 4 *Weeks* make *one* Month, 13 *Months*, 1 *Day*, and 6 *Hours*, make one *Year* Julian; or that Year which is obſerved by us in England.

d. *h.* ′ ″

Q. What's the *Decimal* of 271 19 15 50, a *Year* being the *Integer?*

A. Theſe reduced into *Seconds* are 23483750, which *divided* by 31557600, the *Seconds in a Year*, gives the *Quotient* .74415513, the *Decimal* ſought.

Of Motion.

The Denominative Parts are *Circles, Signs, Degrees, Minutes, Seconds.*

That is, 60 *Seconds* make *one* Minute, 60 *Minutes* make *one* Degree, 30 *Degrees* make *one* Sign, 12 *Signs* make *one* Circle in the *Zodiac*, or the Circumference of the Heavens.

Q. What's the *Decimal* of $23^{\circ}\ 19'\ 56''$, a *Circle* being the *Integer?*

A. These reduced into *Seconds* make 83996, which *divided* by 1296000, the *Seconds* in a *Circle*, give in the *Quotient* .064811, the *Decimal* sought.

Of Foot Measure.

The Denominative Parts are *Feet, Inches, Parts.*

That is, 12 *Parts* make *one* Inch, 12 *Inches* make *one* Foot.

Q. What's the *Decimal* of $\frac{1}{4}$ of an *Inch*, a *Foot* the *Integer?*

A. It is this *Compound* Vulgar Fraction $\frac{1}{4}$ of $\frac{1}{12}=\frac{1}{48}$.

48) 1.000000 (.020833

.....

Q. What's the *Decimal* of $3\frac{1}{8}$ *Inches*, a *Foot* the *Integer?*

First, $\frac{1}{4}$ is $\frac{1}{4}$ of $\frac{1}{12}$, and 3 is $\frac{3}{12}=\frac{1}{4}$, which *two* Fractions, *viz.* $\frac{1}{4}$ of $\frac{1}{12}$, and $\frac{1}{4}$ *added* together according to the *Rule* of *Addition* of *Vulgar* Fractions, make $\frac{52}{192}$, which I *reduce* into a *Decimal*, as has been taught above.

192) 52.00000000 (.27083333

.....

By the above Method I calculated the following *Table.*

This Table is placed upon one of the Sides of *Vero*'s Sliding-Rule.

A Table of the *Decimal Parts* of a *Foot.*

Inches.	*Decim. Parts.*	*Inches.*	*Decim. Parts.*	*Inches.*	*Decim. Parts.*
$\frac{1}{4}$	.02083333	$\frac{1}{4}$	.35416666	$\frac{1}{4}$	.6875
$\frac{1}{2}$	.04186666	$\frac{1}{2}$	.375	$\frac{1}{2}$	.70833333
$\frac{3}{4}$	.0625	$\frac{3}{4}$	.39583333	$\frac{3}{4}$	.72916666
1.	.08333333	5.	.41666666	9.	.75
$\frac{1}{4}$	.10416666	$\frac{1}{4}$	.4375	$\frac{1}{4}$	.77083333
$\frac{1}{2}$	.125	$\frac{1}{2}$	.45833333	$\frac{1}{2}$	.79166666
$\frac{3}{4}$	.14583333	$\frac{3}{4}$	.47916666	$\frac{3}{4}$	.8125
2.	.16666666	6.	.5	10.	.83333333
$\frac{1}{4}$	.1875	$\frac{1}{4}$	.52083333	$\frac{1}{4}$	.85416666
$\frac{1}{2}$	.20833333	$\frac{1}{2}$	.54166666	$\frac{1}{2}$	.875
$\frac{3}{4}$	.22916666	$\frac{3}{4}$	.5625	$\frac{3}{4}$	.89593333
3.	.25	7.	.58333333	11.	.91666666
$\frac{1}{4}$	.27083333	$\frac{1}{4}$	.60416666	$\frac{1}{4}$	.9375
$\frac{1}{2}$	.29166666	$\frac{1}{2}$	.625	$\frac{1}{2}$	.95833333
$\frac{3}{4}$	.3125	$\frac{3}{4}$	.64583333	$\frac{3}{4}$	.97916666
4.	.33333333	8.	.66666666	12.	Integer.

To find the Value of a *Decimal Fraction* in the known Parts of *Money, Weight, Measure, Time*, &c. *The*

The RULE.

Multiply *the given* Decimal *by the* Denominative Parts *of the Thing of which it is a* Fraction, *and* cut off *towards the* Right Hand *of the* Product *ſo many Places as the given Decimal contains, and thoſe on the* Left Hand *are the Value of the given Decimal; and if any thing* remain, *it is the* Decimal *of an* Integer *in the* Denomination laſt found, *which muſt be brought to the* loweſt Name *mentioned: A few* Examples *will make the Thing plain to the meaneſt Capacity.*

Q. What's the *Value* of this *Decimal* .0125 of a *Pound Sterling?* See the Work.

l.
.0125
20
Shilllings .2500
12
Anſwer. Pence 3.00

☞ *As often as* Cyphers *fall on the* Right Hand *of your Work, always drop them; for they have not any manner of Significatiion.*

2. *Example.* What's the *Value* of this *Decimal* .95 of a *Pound Sterling?*

l.
.95
20
Anſwer. Shillings 19.00

3. *Example.* What's the *Value* of this *Decimal* .0375 of a *Pound Sterling?*

l.
.0375
20
Shillings .7500
12
Anſwer. Pence 9.00

4. *Example.* What's the *Value* of .528125 of a *Pound Sterling?*

l.
.528125
20
Shillings 10.562500
12
Pence 6.7500
4
Farthings 3.00 *Anſw.* 10 *s.* 6 *d.* 3 *q.*

There

A Compendious Method of finding the Value of the Decimal of a Pound Sterling.

There is a *ſhort* Way of diſcovering the *Value* of a *Decimal* of a *Pound Sterling*, viz. The *firſt* Figure in the Place of *Primes*, is, when *doubled*, ſo many *Shillings*, and the *other Figures* are *Farthings*, only obſerve that for every 25 to caſt away one *Farthing*.

Example. Let .4862 be the *Decimal* Part of a *Pound*, and its *Value* required.

Firſt, The 4 in the Place of *Primes*, being *doubled*, is 8 *s.* and becauſe the 8 is more than 5, I *take away* 5, and for it *add* one *Shilling* to the 8 *s.* and that makes it 9 *s.* and the *remaining* Figures are 362; but you may omit the *laſt* Figure to the *Right-hand*; then becauſe there is but *one* 25 in 36, I call 36 but 35 *Farthings*, which is 8 *d.* $\frac{3}{4}$, ſo the *Value* of the given *Decimal* is 9 *s.* 8 *d.* $\frac{3}{4}$. The like obſerve of any other *Decimal* of a *Pound Sterling*.

Example 2. Q. What's the *Value* of .933593 of a *Barrel* of *Ale* at LONDON?

.933593
32
1867186
2800779
Gallons 29.874976
4
Quarts 3.499904
2
Pints. 999808 nearly 1 Pint. For it is nine hundred, Ninety-nine thouſand, eight hundred and eight Million-Parts of a Pint.

Example 3. Q. What Part of a Foot is .27083333?

.27083333
12
Inches 3.24999996
12
Parts 2.9999952

	In.	*Pts.*	
Anſwer	3	2.9999952	That is *nearly* $\frac{1}{4}$ of an Inch.

CHAP.

CHAP. III.

Addition *of Decimal Fractions.*

THIS is the very same with Addition of *Whole Numbers* of one *Name* or Denomination, but you must observe to place *Primes* under Primes, *Seconds* under Seconds, *&c.* whether they be *Cyphers* or *significant Figures*, and when the Work is done, make a *Prick* or *Dot* with your Pen *between* the *whole Number* (if there be any) and *Decimal Fraction*, which is known by pricking off *so many* Places to the *Right Hand* as your *greatest* Decimal Fraction contains: See the following *Examples*, which will make all plain.

Fractions.	*Mixt* Numbers.
.7403	3758.14
.04681	2164.927
.904283	1791.2063
.12305	1480.07352
.3197	1365.0067896
.8	10.0004
Sum 2.934143	*Sum* 10569.3540096

The Sum of the *Fractions* amounts to *two whole*, and .934143 *Decimal Parts* of the *Integer*; for in the *greatest* Fraction there are *Six Places*, and therefore I cut off *Six Places* to the *Right Hand* of the Sum: But in the *mixt Number* the *greatest* Fraction consists of *seven Places*, for which Reason I cut off *seven Places* to the *Right Hand* of that Sum.

Examples of Money.

l.		*l.*	*s.*	*d.*	*q.*
87.1246		87	2	5	3.616
72.83574	*are*	72	16	8	2.3104
62.25	*equal*	62	5	0	0.
57.716	*to*	57	14	3	3.36
43.3		43	6	0	0.
34.628458		34	12	6	3.31968
357.854798		357	17	1	0.60608
20					
Shillings 17.095960					
12					
Pence 1.15152					
4					

Farthings .60608 agreeing exactly with that on the *Right Hand*.

Alte-

Ale-Measure. The Method of casting up an *Excise-Book*, charg'd on a *Country Victualler*.

	Days.	X.		VI.		*Cyder.*	
		B.	*G.*	*B.*	*G.*	*H.*	*G.*
1754 *August*	17	17 ½	7. 8	9 ½	3. 4	15 ¼	12. 7
	23	20 ¼	3. 5	8 ¾	6. 5	18	14. 3
	25	12 ¾	8. 4	4 ½	7. 8	12 ½	2. 1
	29	10	5. 7	5 ½	3. 9	3 ¾	6. 8
September	2	14 ¼	6. 6	7 ¾	8. 9	20 ¼	15.
	5	8	2. 1	6 ¼	2.	7 ½	11. 3
	8	3 ¾	7. 8	5 ½	1. 1	8 ¾	7. 9
	10	14 ¼	3. 9	4 ½	3. 3	16 ¼	12. 4
	14	10 ½	5. 5	7 ¼	3. 8	10 ½	10. 5
	17	18 ¼	4. 2	6	5. 4	6 ¾	4. 6
Odds		1 ½		1 ¼		1 ½	
* *Caleb Bono*		131		66 ¾		121	
Carried forward			4. 5		3. 6		3. 1

The Gallons and *Parts* of Gall. of X or *Strong* Beer.

8.5)55.5(6=1 ½
51 0
4.5

The Gallons and *Parts* of Gall. of VI. or *Small* Beer.

8.5)66.1(5=1 ¼
42 5
3.6

The Gallons and *Parts* of Gall. of *Cyder*.

15.75)97.60(6=1 ½
94 50
3.10

The *Operations* above explained

N. B. The three *Dividends* above are the *Totals* of the respective *Gallons* and *Parts* of Gallons; and the *Divisors* 8.5 are *one fourth Part*, or *Quarter* of a *Barrel*; and the *Divisor* 15.75 *is one fourth Part*, or *Quarter* of a *Hogshead*; and the *Remainders* are to be carried to the *Victualler's growing* Charge or Account.

The above *Columns* and *Entries* explained.

Explanation. The *Entries* above we suppose to be an *Officer's Book*, who surveys a *Country-Victualler*: The *first* and *second* Columns shew the *Year*, *Month*, and *Day* when the *Charges* were made; the *third* Column under *B*, shews the *Barrels* and *Quarters*; and the *fourth* Column under *G*, shews the *Gallons* and *Decimal Parts* of a *Gallon* of *Strong* Beer, which is signified by X; the *next two Columns* (under VI.) that marked *B*, shews the *Barrels* and *Quarters* of *Barrels*; and that marked *G*, the *Gallons* and *Decimal Parts* of a *Gallon* of *Small*

* *Caleb Bono* is the Victualler's Name.

Small Beer, which is ſignified by VI; the *two laſt* Columns, (under *Cyder*) that marked *H*, ſhews the *Hogſheads* and *Quarters* of Hogſheads; and that marked *G*, the *Gallons* and *Decimal Parts* of a Gallon of *Cyder*.

How to caſt up and Money an Officer's Book.

Now to *add up* theſe *Charges*, you are to conſider, that 34 *Gallons* makes a *Barrel* both of *Strong* and *Small* Beer, *one Fourth* of which is 8.5 *Gallons*. And the *Cyder* is gauged by the *Wine Gallon*, 63 of which make one *Hogſhead*, *one Fourth* of which is 15.75 *Gallons*. Then upon *caſting up* the *Cyder Gallons* and *Tenths*, I find the *Total* to be 97.6 *Gallons*, which *divided by one Fourth* of a *Hogſhead*, viz. 15.75, the *Quotient* is 6 *Quarters of a Hogſhead*, *equal to* 1 $\frac{1}{2}$ *Hogſhead*, which is to be put in the Column titled *H*; and the *Remainder* 3.1 muſt be placed at the *Bottom* of the *Column G*, and is to be *carried forward*. The ſame Order is to be obſerved in caſting up the *Strong* and *Small* Beer; ſo that there are *Odds* 1 $\frac{1}{2}$ *Barrels* of *Strong*, which comes from the *Strong Gallons* and *Parts*; and *Odds* 1 $\frac{1}{4}$ *Barrels* of *Small*, which comes from the *Small Gallons* and *Parts*; which make in all 131 *Barrels* of *Strong*, 66 $\frac{3}{4}$ *Barrels* of *Small*, and 121 *Hogſheads* of *Cyder*.

What the Exciſe of *Ale*, Small *Beer*, and *Cyder*, and how the laſt is to be charged in the *Vouchers*.

The *Strong Beer* pays Exciſe 5 *s.* and the *Small* 1 s. 4 d. *per* Barrel, and the *Cyder* 10 *s.* 8 *d.* per *Hogſhead*; ſo that the Exciſe of the *Ale* comes to 32 *l.* 15 *s.* 0 *d*; the *Small* Beer to 4 *l.* 9 *s.* 0 *d*; and the *Cyder* to 64 *l.* 10 *s.* 8 *d*; all which Sums make 101 *l.* 14 *s.* 8 *d.*

N. B. *Of the* Cyder 6 s. 8 d. *per* Hogſhead *muſt be charged in the* Ale Voucher, and 4 s. *per* Hogſhead *in the* Malt Voucher.

CHAP. IV.

Subtraction *of Decimal Fractions.*

THIS is the very ſame with Subtraction of *whole Numbers* of one *Name* or Denomination, obſerving to place *Primes* under Primes, *Seconds* under Seconds, *&c.* as has been taught in *Addition*. And when that is done, you muſt take care to diſtinguiſh the *Fractions* from the *whole Numbers* (if any) by cutting off with a *Prick* or *Dot*, *as many* Places to the *Right Hand* of the *Remainder* as are in the *greateſt* Fraction: and when you ſubtract a *Fraction* from a *whole Number*, you muſt *annex* as many *Cyphers* (or ſuppoſe them to be *annexed*) to the *whole Number* as there are *Decimal Places* in the given *Fraction*. The following *Examples* make this plain.

Fractions.	a *Mixt* Number.
From .48 *l.*	586.
Take .275	.72845
Remains .205	585.27155

In

In ſubtracting *Integers* and *Decimals*, obſerve the following Order.

	l.		*l.*	*s.*	*d.*	*q.*
Lent	1730.027	*are equal to*	1730	0	6	1.92
Paid	1681.8352		1681	16	8	1.792
Remains	48.1918		48	03	10	0.128
	20					
Shillings	3.8360					
	12					
Pence	10.032					
	4					
Farthings	.128					

Agreeing exactly with that on the *Right Hand*; for you ſee the *Decimal* .1918 of a *Pound* is equal to 3*s.* 10*d.* 0*q.*128.

In ſubtracting of *Barrels*, *Gallons*, and *Decimal Parts*, as it is uſed in the *Exciſe*, obſerve the following Method.

	Strong.		*Small.*		*Cyder.*	
	B.	G.	B.	G.	H.	G.
Bought	$41\frac{1}{2}$	4.2	$17\frac{1}{2}$	5.6	$60\frac{1}{4}$	10.4
Sold	$29\frac{1}{2}$	7.8	$13\frac{1}{2}$	6.7	$53\frac{3}{4}$	12.8
Rem.	$11\frac{1}{2}$	4.9	$3\frac{3}{4}$	7.4	$6\frac{1}{4}$	13.35

In *Addition* you *carried* 8.5 in the *Strong* and *Small* from the *Gallons* and *Decimal Parts*, to the *Fourths* of a *Barrel*, and in the *Cyder* 15.75: And here you muſt *borrow* the ſame Quantities, when you cannot otherwiſe *ſubtract*. As in the *Strong*, I cannot take 7.8 out of 4.2, therefore I borrow a *quarter* of a *Barrel*, which is 8.5, and add it to 4.2: Which makes it 12.7. From this take 7.8 and there remains 4.9. The ſame is to be obſerved in the other *Examples*.

CHAP. V.

Multiplication *of Decimal Fractions.*

MULTIPLICATION of *Decimals* is the very ſame with that of *whole Numbers* in all Reſpects, whether both the *Factors** be *Decimal Fractions*, or whether they be *mixt Numbers*; only when the Work is done, all the Matter is to diſtinguiſh the true *Product*, which is always known by cutting off to the *Right Hand* of the Product *ſo many* Places, as you have *decimal Places* in *both* the

* The *Multiplicand* and *Multiplier* are called *Factors* by ſeveral Arithmeticians.

the *Multiplicand* and *Multiplier*; but if the *Product* doth not produce *ſo many* Places, the Defect muſt be ſupplied by prefixing *ſo many Cyphers* on the *Left Hand* the Product, as will make the Places *equal* to thoſe in *both* Factors. How to find out the true Product.

Here are *three* Caſes, which mark well.

CASE 1.

A *Decimal Fraction* multiplied by a *Decimal Fraction*. Caſe 1.

Multiplicand	.864	And	.4078
Multiplier	.432	By	.2039
	1728		36702
	2592		12234
	3456		8156
Product	.373248		.08315042

CASE 2.

A *Decimal Fraction* multiplied by a *Mixt Number*. Caſe 2.

Multiply	.864	And	.4078
By	4.32	By	20.39
	1728		36702
	2592		12234
	3456		8156
Product	3.73248		8.315042

CASE 3.

A *Decimal Fraction* multiplied by a *Whole Number*. Caſe 3.

Multiply	.864	And	.4078
By	432.	By	2039.
	1728		36702
	2592		12234
	3456		8156
Product	373.248		831.5042

☞ Tho' I have made uſe of the *ſame Figures* throughout each of theſe three *Examples*, yet the Reader will find the *Value* of the *Products* to be very different.

CONTRACTIONS in *Multiplication* of *Decimals*.

It frequently happens in Buſineſs, that *one* or *both* the *Factors* conſiſt of *many Decimal Places*, *viz.* of 12, 14, or ſometimes more; ſo that to work them *all* would be very troubleſome, and when done but little to the Purpoſe; becauſe a *fewer Number of Places* may do the Buſineſs as well: Therefore the following Method was invented.

The

The RULE.

1. Tranſpoſe *all the Figures of the* Multiplier in a contrary Order *to the* common Way; viz. *Let the* Unites Place *ſtand to the Left Hand.*

2. *The* Unites Place *of the* Multiplier *muſt ſtand under* that *Place of the* Multiplicand, *whoſe* Decimal Place *you intend to retain in the* Product.

3. *Begin as in* common *Multiplication, always having regard to the Increaſe of* that Figure *on the* Right Hand, the Figure which ſtands over your Multiplier; *making uſe of no* more Places *of your* Multiplier *than what* ſtand even *with your* Multiplicand *to the* Left Hand.

The following *Examples* will make this plain.

Let it be required to multiply 3.14159 by 24.8253, and to have *four* Decimal Places in the *Product* of the *firſt* Operation, *three* in the *ſecond*, *two* in the *third*, and *one* in the *fourth*.

1.	2.	3.	4.
3.14159	3.14159	3.14159	3.14159
352842	352842	352842	352842
628318	62831	6283	628
125663	12566	1256	125
25132	2513	251	25
628	63	6	—
157	16	77.96	77.8
9	77.989		
77.9907			

You ſee in the 4th Operation I take no more of the *Multiplier* than the 8 which *ſtands even* with the *Multiplicand*, the 3, 5 and 2 are dropp'd; in the 3d the 3 and 5; in the 2d the 3 only is omitted: But in the 1ſt Operation all the *Multiplier* is taken in.

THERE are many pretty Queſtions in *Multiplication* of *Decimals*, to which ſeveral *true Anſwers* may be produced according to what is put for the *Integer*: As 3 *s.* 11 *d.* *ſquared*, a *Pound* being the *Integer*, the *Anſwer* will be 9 *d.* 0.816541 *q*; but if you make a *Shilling* the *Integer*, the *Anſwer* will be 15 *s.* 4 *d.* 0.333 *q.*—So likewiſe if 1 *s.* 6 *d.* be *ſquared*, a *Pound* being the *Integer*, the *Anſwer* will be 1 *d.* 1.4 *q*: But put a *Shilling* for the *Integer*, the *Anſwer* is 2*s.* 3*d.* *&c.*

CHAP. VI.

Division of *Decimal Fractions.*

YOU are to proceed in every reſpect, as if the *Fractions* were *whole Numbers*; tho' it may happen that the *Dividend* ſhall be *leſs* than the *Diviſor*; and in this Caſe *annex* as many *Cyphers* to the *Dividend* as you think you ſhall want, and the *Cyphers* thus *annex'd* muſt be reckon'd as *Decimals*; when this is done, the Difficulty is to know the *true Value* of the *Quotient*; which is always found by this RULE.

RULE.

1. Subtract the *Number* of *Decimal Places* in the *Diviſor*, from the *Number* of *Decimal Places* in the *Dividend*, and the *Remainder* is the *Number* of *Decimal Places* that you are to cut off to the *Right-Hand* of your *Quotient* for *Decimals*, and thoſe on the *Left* (if any) are *whole Numbers*.

2. But when it happens that the *Quotient* does not contain *ſo many* Places as the *Exceſs* of *Decimal Places* of the *Dividend* above thoſe of the *Diviſor*, the Defect muſt be ſupplied by *prefixing* ſo many *Cyphers* to the *Left-hand* of your *Quotient* as will make up that *Exceſs*. See this done in the 4th *Caſe* following.

3. Further, *Note*. When you divide a *whole Number* by a *whole Number*, if any thing remains, *annex Cyphers* to that *Remainder*, and *divide* as far as you pleaſe; ſo will you have a *Decimal* in the *Quotient* of *as many* Places as you *annexed Cyphers*, and the *whole Quotient* thus found will be a *mix'd Number*.

4. There are NINE *Caſes* which take in the following Order; in which I ſhall make uſe of the *ſame Figures*, in both *Diviſor* and *Dividend*, by which the Learner will be eaſily let into the true Notion of the Ground and Nature of *Decimals*.

CASE 1.

Given, a *whole Number* to be divided by a *whole Number*.

579268.)314159265.(542.33837

N. B. Here five *Cyphers* were added to the *Remainder*, which produce five *Decimal Places* in the *Quotient*.

A whole Number by a whole Number.

The Operation.

579268.)314159265.00000(542.33837

2896340
2452526
2317072
1354545
1158536
1960090
1737804
2222860
1737804
4850560
4634144
2164160
1737804
4263560
4054876
Remains 208684

CASE 2.

A whole Number by a mixt Number.

Given, a *whole Number* to be divided by a *mixt Number*.

579.268)314159265.0000(542338.3

Here you muſt add *three* Cyphers to the right Hand of the *whole Number* in the *Dividend*, and then the *Quotient* will be a *whole Number*; and becauſe there is a *Remainder*, you may go on again by adding *Cyphers* at pleaſure; ſo the *Quotient* will be a *mixt Number*.

CASE 3.

A whole Number by a Decimal Fraction.

Given, a *whole Number* to be divided by a *Decimal Fraction*.

.579268)314159265.000000(542338373.

CASE 4.

A mixt Number by a whole Number.

Given, a *mixt Number* to be divided by a *whole Number*.

579268.)3.14159265(.00000542

CASE 5.

A mixt Number by a mixt Number.

Given, a *mixt Number* to be divided by a *mixt Number*.

57.9268)3.14159265(.0542

CASE 6.

A mixt Number by a Decimal Fraction.

Given, a *mixt Number* to be divided by a *Decimal Fraction*.

.579268)3.14159265)5.42

CASE 7.

A Decimal Fraction by a whole Number.

Given, a *Decimal Fraction* to be divided by a *whole Number*.

579268.).314159265(.00000542

CASE 8.

A Decimal Fraction by a mixt Number.

Given, a *Decimal Fraction* to be divided by a *mixt Number*.

5.79268).314159265(.0542

CASE 9.

A Decimal Fraction by a Decimal Fraction.

Given, a *Decimal Fraction* to be divided by a *Decimal Fraction*.

.579268).314159265(.542

Note, In all the above *nine* Caſes, except the *firſt*, I have purpoſely omitted the *Operations* at large to exerciſe the Learner and to try his Ability.

Multiplication and *Diviſion* infallibly *prove* each other; and if you have a mind to work any *Multiplication* Sum, by *Diviſion*, or any thing in *Diviſion* by *Multiplication*, divide an *Unite with Cyphers annexed*, by the given *Multiplier*; and the *Quotient* is the *Diviſor*, by which, if you *divide* the given *Multiplicand*, that *Quotient* will be equal to the *Product*, &c.

Again, If you divide an *Unite*, by your given *Diviſor*, this *Quotient* will be a *Multiplier*; by which if you *multiply* the given *Dividend*, the *Product* ſhall be *equal* to the *Quotient* of that *Dividend*, when *divided* by its *proper Diviſor*.

Of

Of dividing *Decimals* a *much* ſhorter *Way*.

Becauſe the Way of dividing Decimals often proves tedious when it is required to continue the Diviſion till the *Value* of the Remainder be *ſmall*; therefore the following *Rule* was invented.

1. The *firſt Figure* in the *Quotient* muſt be of the *ſame Name* with *that* Figure in the *Dividend*, which ſtands (or is ſuppoſed to ſtand) over the *Unite's Place* in the *Diviſor*.

2. By knowing the Value of the *firſt Figure* in the *Quotient*, you may have *as many* or *as few Places* of Decimals as you pleaſe, by taking ſo many of the *left Hand* Figures of the *Diviſor* as you will for the *firſt Diviſor*, and then take as many Figures of the *Dividend* as will anſwer them; and in dividing omit *one Figure* of the *Diviſor* at each Operation: A few *Examples* will make this plain. Let it be required to *divide* the *mixt Number* 3.14159265 by the *mixt Number* 57.9268, and to retain *four* Decimal Places.

Now becauſe the 7 in the *Unite's Place* of the *Diviſor* falls under the 4, or *ſecond* Decimal Place of the *Dividend*, I ſee (according to *Rule* 1. above) that there muſt be a *Cypher* to the *left Hand* of the *firſt* Decimal Place in the *Quotient*.

In the Work, *ſubtract* 3 from 5, the *firſt Figure* 5 I call 6, for the *Increaſe* of the 9 cut off in the Dividend.

Example 1.

* 57.92 | 68)3.1415|9265(.0542
... .
28963
2452
2317
135
115
21

Example 2.

.5792 | 68).31415|9265(.5427
... .
28960
2455
2317
138
115
23

Example 3.

7.9863(82.157|647(1.028
....
79863
2294
1597
697
638
59

☞ Tho'

* I call the Diviſor no more than 57.92 and the Dividend but 3.1415, having regard to the Increaſe of the Figures in the Diviſor left out.

☞ Tho' much Labour may be ſaved by this Method, yet it is not proper to uſe it, unleſs the Decimals in the *Dividend* contain *many* Places; and then take all the *Diviſor*, and work as above is taught.

When you cannot have the *Diviſor*, drop a Figure in the *Diviſor*, which is done by putting a *Dot* under it; then with the *Remainder* of the *Diviſor* proceed to divide the reſt of the *Dividend*, as you may ſee by the Work.

Example 4.

```
579268).3141592|65(.000000542
  ...          .
  .2896340|
  -------
    245252
    231707
    -----
     13545
     11585
     -----
      1960|
```

As in *Multiplication*, ſo here in *Diviſion* many Queſtions may be propoſed, and *diverſe* Anſwers to the ſame Queſtion according to what is made the *Integer*. As *ſuppoſe* 6 *d.* be *divided* by 6 *d.* a *Pound* the *Integer*, the *Quotient* will be 1 *l.* and if 5 *s.* 3 *d.* $\frac{3}{4}$ be *divided* by 15 *s.* 9 *d.* $\frac{3}{4}$ the *Quotient* will be 6 *s.* 8 *d.* 2.5312 *q.* but if a *Shilling* be the *Integer* the *Quotient* will be 4 *d.* 0.1268 *q.*

CHAP. VII.

Of the ſingle *Rule of* Three Direct, *in Decimals.*

IN this *Rule* there are always *three* Numbers given to find a *Fourth*, which bears ſuch Proportion to the *Third*, as the *Second* doth to the *Firſt*.

1. *Obſerve* always to put the *Number* that *implies* the *Demand* in the *Third Place*.

2. The *Firſt Number* muſt be of the *ſame Name* with the *Third*.

3. *Multiply* the *Second* and *Third* Terms together, and *divide* that *Product* by the *Firſt*, and the *Quotient* is the *Anſwer* to the *Queſtion*; and will always be of the *ſame Name* with the *ſecond* Number.

Example. If 12 $\frac{1}{2}$ Yards of Cloth *coſt* 15 *s.* 9 *d.* what will 48 $\frac{1}{4}$ Yards *coſt* at that Rate, a *Pound* being the *Integer*?

You muſt ſtate it thus.

Yards	*l.*	Yards	*l. s. d. q.*
If 12.5	: .7875 : :	48.25.	*Anſwer*, 3 0 9 2.16.

Secondly.

Secondly, If in the ſame Queſtion we make a *Shilling* the *Integer*, it will ſtand thus:

Yards *s.* Yards *l. s. d. q.*
If 12.5 : 15.75 : : 48.25. *Anſwer*, 3 0 9 2.16.

Queſtion II. If for 2*l.* 5*s.* 6*d.* $\frac{1}{4}$ I buy 2 $\frac{1}{2}$ *Barrels* of *Ale*, how many *Barrels* may I buy for 50*l.* 10*s.* 3*d.* $\frac{3}{4}$, a *Pound* being the *Integer*?

l. B. *l.* Barrels.
If 2.27604167 : 2.5 : : 50.515625. *Anſwer*, 55.486.

The *ſame Queſtion* anſwered by putting a *Shilling* for the *Integer*, it will ſtand thus:

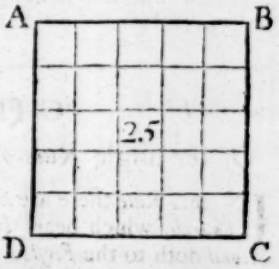
s. B. *s.* Barrels.
If 45.520833 : 2.5 : : 1010.3125. *Anſwer*, 55.486 as before.

It is needleſs in this Place to ſay any thing of the *Inverſe*, or any other *Proportions*, becauſe they are of no Uſe here; and when I come to treat of the Uſe of the *Sliding Rule*, you will find them ſufficiently explained.

CHAP. VII.

Of the Extraction *of the* Square Root.

EXTRACTION of the *Square-Root*, is the finding a *Number* which being *multiplied* by itſelf *once*, gives the reſpective *Power* out of which the *Root* is to be *extracted*: as if 25 be propoſed to be *extracted*, you will find its *Root* to be 5, for 5 Times 5 is 25; and this is *Geometrically* demonſtrated by the Figure in the Margin, where each *Side* contains 5 *equal Parts*, by which the *great Square* ABCD is divided into 25 little Squares.



2. This Table of the *Square* of the *nine Digits* with their *Roots* muſt be got by Heart.

Squares	1	4	9	16	25	36	49	64	81
Roots	1	2	3	4	5	6	7	8	9

3. Now to find out the *Root* of any *Square* propoſed: ſet down your *Number*, then draw a crooked Line on the *Right Hand* thereof, in which ſet *every* Figure of the *Root* diſtinctly; then begin at the *Unite's Place* of a *whole Number*, over which put a *Dot*,

a *Dot*, and ſo over *every other* Figure to the *End* of the *Square Number* to be *extracted*; and *ſo many* Dots as there are, *ſo many* Figures you will have in the *Root*.

4. This done, ſee what is the *neareſt* Square *leſs* than the *firſt Period* towards the *Left Hand* of your *Square Number*, and whatever you find it to be, place it in the *Quotient*, or Root; *Square* the Root, (that is, *multiply* it by itſelf) and ſet it under the *firſt Square*; draw a Line and *ſubſtract*; to this *Remainder* bring down the *next Period* or *Pair* of Figures; *double* the *Root* and place it on the *Left-Hand* for a *Diviſor*, then ſee *how often* the *Diviſor* can be had in the *Reſolvend*, (*excepting* the Figure to the *Right-Hand*;) and as often as you find it will go, place it in the *Root*, and alſo in the *Unite's Place* of the *Diviſor*; *multiply* the *laſt* Root by the *Diviſor*, and place the *Product* under the *Reſolvend*; continue thus 'till all the *Periods* or Square Numbers be brought down. And if any thing remain, *annex two Cyphers*, and work as has been taught above; and for every *two Cyphers* thus *annexed* there will be one *Decimal Place* in the *Root*.

Example I. Let it be reqired to *Extract* the *Square-Root* of 2401?

```
  . .
 2401(49 Root
  16
 ---
 89)801
    801
 ----
       0
```

Here are *four* Cyphers *annexed* which give *two Decimal Places* in the *Root*.

Example II.

```
 . . . . . . . .
 814602573.0000.(28541.24
   4
 ---
 48)414
    384
 ----
 565)3060
     2825
 ----
 5704)23525
      22816
 -----
 57081)70973
       57081
 -----
 570822)1389200
        1141644
 -------
 5718244)24755600
         22832976
 --------
 Remains 1922624
```

If

If you *square* the *Root*, and to that *Product* or Square *add* the *Remainder* (if any) that Sum ſhall be equal to the *Square Number* firſt given. Proof of the Work.

Example III. What's the *Square Root* of 436.5?

When your Number of Decimal Places are *odd*, as here, you muſt ever make them even by *annexing* Cyphers, as 0,00,00,00,00, *&c.* to the *Right-Hand* of the given *Square*, that ſo the *Dot* may fall over the *Unite's Place* of the *whole Number*. To extract the *Square* Root of a *mixt* Square.

. . . . . .

See the Work. 436.50000000 (20.8925 Root

4

408) 3650
3264

4169) 38600
37521

41782) 107900
83564

417845) 2433600
2089225

Remains 344375

Example IV. Let the *Square Root* of 80 be ſought? A *Surd* whole Number given to be extracted.

. . . . . .

Operation. 80.0000000000 (8.94427 Root.

64

169) 1600
1521

1784) 7900
7136

17884 76400
71536

178882) 486400
357764

1788847) 12863600
12521929

Remains 341671

In this Work I have annexed 10 *Cyphers*; ſo there is in the Root five *Decimal Places*; and when ſo done, there is a *Remainder* of 341671.

A *Surd Number* is that which is not a *true* Square Number; that is, whoſe *Root* cannot be *exactly found*; tho' by *annexing Cyphers* as above, you may come *infinitely* near the Truth, as is 80 in the above *Example*.

CHAP. IX.

Of the Uſe *of the* Square Root.

THE *Square* Root is of excellent Uſe in moſt Parts of the *Mathematics*; but more eſpecially in ſolving of *Arithmetical* and *Geometrical* Queſtions, which I ſhall exhibit as follows.

1. To find a *Geometrical mean Proportional* between *any two* given Numbers.

The RULE.

Multiply *the* two *given Numbers together, and* extract *the* Square Root *of the* Product, *which gives the* Anſwer *ſought.*

Example I. What's the *Geometrical mean Proportional* between 4 and 6?

Here four Cyphers added, give two Decimals in the Root.

Operation.

```
  6
  4
 ---
 24 (4.89
 16
 ---
 88) 800
     704
 ----
 969) 9600
      8721
 ----
 Remains 879
```

Example II. What's the *Geometrical Mean* between 20 and 30? *Anſwer* 24.49.

2. To find the *Diameter* of a *Circle* which ſhall be *equal* in *Area* * to an *Ellipſis*, whoſe *Tranſverſe* and *Conjugate* † Diameters are given.

The RULE.

Multiply *the* two *Diameters of the* Ellipſis *together*; *and the* Square Root *of that* Product *is the* Diameter *of a* Circle *equal.*

Example. Let the *Tranſverſe* Diameter of an *Ellipſis* be 36, and the *Conjugate* 23.5, what's the *Diameter* of a *Circle* equal?

```
  23.5
  36
 ----
 1410
 705
 ----
 8460.0000(29.08 Anſwer.
```

3. Any

* The *Area* of a *Circle* is the ſame with *ſuperficial Content.*

† The *Tranſverſe* Diameter is the *longeſt*, and the *Conjugate* is the *ſhorteſt* Diameter in any *Ellipſis*, croſſing each other at right Angles, and cutting each other in the *Center.*

3. Any *two Sides* of a *Rect-angled* Triangle being known, the *third* may be eaſily found. By which, having the *Bung* and *Head* DIAMETERS of a Caſk given, we can find the DIAGONAL *Line*, & è contra.

By the 47th of the firſt Book of *Euclid*'s Elements.

The RULE.

Add *the* Square of half the Sum *of the* Head *and* Bung Diameters *to the* Square of half the Length, *the* Square Root *of that* Sum *is the* Diagonal *of that Caſk*.

Example. Let 25 be the *Bung*, 22 the *Head Diameter*, and 30 Inches the *Length* of a *Spheroidal* Caſk; What's the *Diagonal Line?*

Operation.

Head	22	*Length*	30
Bung	25	*Half*	15
Sum	47		15
Half	23.5	*Square*	225
	23.5		
	1175		
	705		
	470		
Square	552.25		
Add	225.		
	777.25	(27.87 the Diagonal.	
	4		
47)	377		
	329		
548)	4825		
	4384		
5567)	44100		
	38969		
	5131		

Note, *The Contents of this Caſk in* Ale Gallons is 48.3, *and in* Wine Gallons 58.9, *as will be ſhewn in its proper Place.*

4. The *Area* of a *Triangle, Circle**, *&c.* given, to find the *Side of a Square* equal.

5. The *Side of a Square* given, to find the *Side* of *another Square* that ſhall be 2, 3, 4, *&c.* times *greater* or *leſſer* than the given *Square*.

6. Given the *Diameter* of a *Circle*, to make another 2, 3, or 4 times *greater* or *leſſer* than the given *Circle*.

Ad-

* All *Circles* are *proportioned* one to another as the *Square* of their *Diameters*.

Admit a Pipe of Lead, being 1.5 *Inches Diameter*, will fill a *Ciſtern* in two *Hours:* I demand the *Diameter* of another Pipe that will fill the ſame Ciſtern in *one* Hour?

The RULE.

Multiply *the* Square *of the* Diameter *by* 2, *and the* Square Root *of that* Product *is the* Anſwer.

Operation.

```
  1.5
  1.5
 ----
  75
 15
 ----
 2.25
    2
 ----
 4.50 (2.12 Inches is the Anſwer.
 4
 ----
41) 50
    41
 ----
422) 900
     844
 ----
      56
```

An Example where the Solution is purpoſely omitted to try the Learner's Ability.

7. Given, the *Circumference* and *Weight* of a *Fathom* of *Rope* or *Cable*, to find the *Weight* of *another* Cable whoſe *Circumference* is alſo known.

The RULE.

As the Square *of the* Circumference *of the* Cable *given, is to the* Weight *of* one Fathom, *or any Part thereof*; *ſo is the* Square *of the* Circumference *of the* Rope *required, to the* Weight *of* one Fathom, *or any Part thereof.*

8. Given, the *three Sides* of a *right-lined* TRIANGLE, to find the *Area* or *ſuperficial Content.*

The RULE.

Add the three Sides *together, and from* half the Sum, ſubtract *each Side* ſeverally; *then* multiply *the* half Sum into *all the* three Differences: *The* Square Root *of the* laſt *Product is the* Area *required.* Euclid 12. 2.

In Queſtions of this Nature, the Number of Perſons is always equal to the Sum which they ſpent *per* piece.

9. Given, the *Reckoning* ſpent by a *Company of Perſons*, to find out the *Number of Perſons*, and what they ſpent *a-piece.*

The RULE.

Reduce, *the whole Reckoning into its* loweſt Name, *and* extract *the* Square Root *of it, which gives the* Number of Perſons, *and what*

what they ſpent per piece, *which is always of the* ſame Name *you* reduced *the* Sum *into*.

10. The *Square Root* is alſo uſeful in *embattling* of Soldiers in an Army; which being foreign to our preſent Deſign, I forbear to ſpeak of it in this Place.

The *Cube Root* being of no Uſe in *Meaſuring*, and in *Gauging*, only for calculating *Diagonal* Lines; I ſay no more of it, till I ſhew its Uſe upon the *Sliding Rule*. The Reaſon why the Cube Root is not taught here.

CHAP. X.

A Deſcription of the Sliding Rule*.

(See Plate *A*, facing the *Title Page*.)

THIS Inſtrument is commonly made of *Box*, and ſometimes *Ivory*, exactly a Foot long, 1 Inch and 2 Tenths *broad*, and $\frac{3}{4}$ of an Inch *thick*. It conſiſts of *four* Parts, *viz.* A *Rule*, and *three* ſmall *Scales* or *Sliding-pieces* fitted nicely with Groves to ſlide in it.

The *firſt* marked B N, to ſlide by the Line A, the *ſecond* mark'd C D, to ſlide between the Lines D and E, and the *third* mark'd N, ſlides in the *Edge* of the Rule between the *two Segments* of a *Circle*: ſo that when the *Sliders* B and C are drawn out to their full Extent, the whole Rule will be *three* Feet *long*. Fig. 1. Fig. 2. Fig. 3.

Of the firſt Face *of the Rule*.

1. On the *firſt Face* of this Inſtrument are placed *four* Lines of Numbers †; the *firſt* Line of Numbers conſiſts of *two Radius*'s ‡, and is numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and then 2, 3, 4, 5, 6, 7, 8, 9, 10. Fig. 1.

On *this* Line are placed ſeveral Braſs *Center Pins*. The *firſt* in the *firſt* Radius at 2150.42, and *the third* likewiſe at the ſame Number taken in the *ſecond* Radius, having M B ſet to them, ſignifying that the aforeſaid Number repreſents the *cubic Inches* in a *Malt Buſhel*. The *ſecond* and *fourth* Center Pins are ſet at the Number 282 on *each* Radius; they have the Letter A ſet to them, ſignifying that the aforeſaid Number 282 are the *cubic Inches* in an *Ale Gallon*. And the W on the Line B ſtands

* This Rule was firſt invented by *Thomas Everard*, Eſq, in the Year of our Lord 1683, and made by *Iſaac Carvar* of *Horſleydown*, near *London*. But the Rule which I now deſcribe is an Improvement on *Everard*'s, mentioned by me in the 9th and 10th Editions of *Everard*'s *Gauging*. *Everard* was then Officer in the Exciſe at *Southampton*. See the firſt Edition of his Book.

† Mr. *Gunter* was the firſt who made the *Line* of *Numbers* from the Logarithms.

‡ *Radius* ſignifies the *Semi*-Diameter or *Half*-Diameter of a *Circle*.

ſtands at 231, being the *cubic Inches* in a *Wine Gallon:* you ſee it is placed both in the *firſt* and *ſecond* Radius, the C in the ſame Line being placed at 3.14, which is the *Circumference* of a *Circle* whoſe *Diameter* is *Unity*.

The *fourth* Line, on the *firſt* Face, is a broken *Line* of Numbers of *two* Radius's numbered 2, 1, 9, 8, 7, 6, 5, 4, 3, 2, 1, 9, 8, 7, 6, 5, 4, 3. The *Number* 1 is ſet againſt M B of the *firſt* Radius of the Line A; this Line of Numbers hath M. D. ſet to it, ſignifying *Malt-Depth*. *Note*, The little long black *Dots* over the *Center Pins* are put directly over the proper Numbers. *This* Line of Numbers hath A placed at the *End* thereof, and is called A for Diſtinction's Sake.

See the Menſuration of a Circle in the following Work where you have theſe Numbers at large.

2. The *ſecond* and *third* Line of Numbers which are on the *Sliding Piece* B N (and which may be called but one Line) are exactly the ſame with the *firſt* Line of Numbers: The little black *Dot* that is near the Diviſion 7, on the *firſt* Radius, having *Si* ſet after it, is put directly over ,707, which is *the Side of a Square inſcribed in a Circle, whoſe Diameter is Unity*. The black Dot near the Figure 9, after which is written *Se**, is ſet directly over ,886, which is *the Side of a Square equal to the Area of a Circle whoſe Diameter is Unity*.

Of the ſecond Face *of the Rule.*

Fig. 2. How theſe Gauge Points are found and uſed will be ſhewn in the following Work.

3. The *ſecond Face* of the Rule has one *ſingle* Line of Numbers mark'd D, and number'd 1, 2, 3, *&c.* to 10. The Line C (on the *Slider*) is a double Line of Numbers of the *ſame Length* with the ſingle one D; and by this on the *Slider* is the *ſingle* Line of Numbers of D again repeated, which anſwers to the *Square* and *Cube Roots* of the Lines C and E. The W. G. on the Line D being placed at 17.14 is the *Gauge Point for Wine*; and A. G. placed at 18.94 is the *Gauge Point* for *Ale* Gallons. The M. S. which ſtand at 46.37 is the *Gauge Point* for a *Malt Buſhel* in *Square Meaſure*; And the M R being placed at 52.32 is the *Gauge Point* for a *Malt Buſhel* in *round* or *circular Meaſure*. The T P which ſtand at 6.32 is the *Gauge Point* for a *Pound* of *Tallow* neat. The Line marked E, on the *ſecond Face* of the Rule, is a *Triple* Line of Numbers, and is numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 1; which 1 ſtands for 10, the *next Line* being number'd 1, 2, 3, *&c.* to 10, which ſtands for 100, the *third* Line being number'd 1, 2, 3, *&c.* to 1000, having E after it, and therefore is called the Line E for Diſtinction ſake; its Uſe is to find the *Cube Root* of any Number, and to calculate *Diagonal Lines* for any *Meaſure* or *Caſk* whatſoever.

4. The *Two Lines* of Numbers which are on the *Sliding Piece* marked C, are exactly the ſame as on the *Sliding Piece* on the *other Side* the Rule. There is placed (upon ſome Rules) a black

* The two *Gauge Points Si.* and *Se.*, are ſometimes put upon the *Rule* and ſometimes omitted.

black *Dot* at .0795 which is the *Area of a Circle* when the *Circumference* is *Unity:* And another black *Dot* at .785 being the *Area of a Circle* when the *Diameter* is *Unity.*

Of the third Face *(or Edge) of the Rule.* Fig. 3.

On *one Edge* of the Rule are placed *two Lines* of *Segments* of a *Spheroidal* Caſk, each numbered 1, 2, 3, *&c.* to 100; the *firſt* is for finding the *Ullage of a Caſk*, taken as the *middle Fruſtum* of a *Spheroid, lying* with its *Axis parallel* to the *Horizon*, noted with *Seg. Ly.* and the *other* for finding the *Ullage* of a *Caſk ſtanding*, as noted with *Seg. St. Between* theſe two *Segments* ſlides a Line of Numbers with a *double* Radius marked at the *End* with N; and at each *End* of the Slider there is a *Braſs Stud* for Conveniency of moving them to and fro with your Thumb.

Of the fourth Face *(or Edge) of the Rule.* Fig. 4.

5. On the *oppoſite Face* of the Rule is placed a Line of *Inches* to 12 *decimally divided:* next to this lyeth a Line numbered with 1, 2, 3, *&c.* to 7, and at the End marked with *Spheroid*; by help of which is found *a mean Diameter* for a *Caſk*, in the Form of the *middle Fruſtum of a Spheroid.* Next under this is a Line for finding the *mean Diameter* of a *Caſk* in the Figure of the *middle Fruſtum of a parabolic Spindle*, which by *Gaugers* is called the *ſecond Variety of Caſks*; it is numbered 1, 2, 3, 4, 5, 6, and at its End is writ 2d *Variety.* Next under this lyeth a Line, by means of which is found the *mean* Diameter* of a *Caſk* of the *third Variety*; that is, a *Caſk* in the Figure of *two parabolic Conoids abutting upon a common Baſe:* it is numbered 1, 2, 3, 4, 5, and at the End thereof is writ 3d *Variety.*†

Of the three *Sliding Pieces.*

6. The *above* are all the Lines on the *four* Sides of the Rule; Fig. 5. and 6. but on the *Backſide* of the *two Sliding Pieces* is a Line of *Inches* from 13 to 36, when the two ſliding Pieces are put *end ways* together; and againſt that the correſponding *Gallons*, or *hundred* Parts,

* That is a mean *Diameter* which reduceth a Caſk into a *Cylinder*; which Diameter is always *more* than the *Head*, and *leſs* than the *Bung Diameter.*

† Mr. *Vero*, ſome time a *Collector* of the Exciſe, made an Alteration in *Everard*'s Sliding Rule; ſo that the whole Length of *one Foot* contained but *one ſingle Radius* of the *Line* of *Numbers*, and both Sliders work together on one Side of the Rule in every Operation; by which Contrivance the *Diviſions* in this Rule, are *twice as large* as on thoſe firſt made by Mr. *Everard.* And on the narrow *Face* of this Rule of Mr. *Vero*, is a *Foot* divided into 100 *equal Parts*, every ten of which are numbered; I M ſtands at the Beginning of it, ſignifying *Foot Meaſure*. Under this is a Line *of Inches*, each being divided into ten *equal* Parts, having I M at the End thereof, ſignifying *Inch Meaſure.* Next to this is a Line for finding the *mean Diameter* for the *fourth Variety* of Caſks, which is the *middle Fruſtum* of *two Cones abutting upon one common Baſe.* It is numbered 1, 2, 3, 4, 5, 6, and at the End thereof is writ F C, ſignifying *Fruſtum of a Cone.*

Parts, that any ſmall Tub, or ſuch like open Veſſel (from 13 to 36 Inches Diameter) will contain at *one Inch deep:* its Conſtruction will be ſhewn in its proper Place. Theſe are commonly called (by the Gaugers) the *Ale Areas*. And by drawing out the *firſt Slider*, any *open* Veſſel's *Diameter under* 24 *Inches* may be taken, and its *Area* in *Ale Gallons* is ſhewn by *Inſpection:* if the Tub be *more* than 24, and *leſs* than 36 *Inches Diameter*, then *pin* the *firſt Slider* faſt, and draw out the *other Slider*, and you have the *Diameter* in *Inches* and *Decimal Parts* of an Inch of that Tub, with the *Ale Area* anſwering to that *Diameter* by Inſpection.

Of the Uſe of the Sliders.

Fig. 7. The *Inſide* of the little Slider marked *N.* ⊙, is for reducing Caſks in the Form of the *Fruſtum* of a *Cone*, to a *Cylinder*; as ſuppoſe the *Difference* between *Head* and *Bung*, of a Caſk be 5. 3, ſeek this in the *Line of Inches*, and againſt it you will find 3. 4, which *add* to the *Head* Diameter, and it *reduces* the Caſk to a *Cylinder*.

How the Lines *on the* Sliding Rule *are* made.

1. All the *Lines of Numbers* above deſcribed are made by *one General Rule*, which is this: Get a Plate of any good Metal, as *Braſs*, *Copper*, &c. of what Length you deſign your Line to be, and thereon draw *three parallel Lines*, for the better diſtinguiſhing the *Diviſions* of the Line of Numbers, and make a Mark for the Beginning of it. Cloſe by theſe *three parallel Lines* draw *ten other parallel Lines*, and *divide* this into 10 *equal Parts*; one of which *ſubdivide* into 100 *equal Parts*, which makes it a *Diagonal Scale* of 1000 *equal Parts:* being thus prepared, look into the Table of *Logarithms** for the Number 200, and againſt it you will find the *Logarithm* 2.301030: *rejecting* the *Characteriſtick* 2, and alſo the *three laſt* Figures to the *right Hand* 030, becauſe the *Length* of the *Radius* is divided but into 1000 *equal Parts*; take 301 (from your *Diagonal Scale*) in your *Compaſſes*, and lay off that Diſtance from the *Beginning* of *the Line of Numbers*, and *there* place the Figure 2 for the *firſt Prime*. Again to find the *Diviſion* for the *ſecond Prime*, look into the Table of *Logarithms* for the Number 300, and you will find its *Logarithm* to be 2.477121, *reject* the *Characteriſtick* 2, and alſo the *three laſt* Figures to the *Right Hand*, and take in your *Compaſſes* from your *Diagonal Scale* (as before) the Number 477, and lay off that Diſtance from 1, at the *Beginning* of the Line of Numbers to 3 for the *ſecond Prime:* and ſo by proceeding thus you will compleat all the *Prime Numbers* of *one Radius* of your Line of Numbers: And for your better Help I ſhall here inſert the *Logarithms*, with the *Numbers* themſelves that are to be taken from your *Diagonal Scale*. Numbers

* *Logarithms* are Series of artificial Numbers, invented for the Eaſe and Expedition of Calculation, proceeding in an *Arithmetical* Proportion, as the Numbers they anſwer do in a *Geometrical* one.

Numbers	Logarithms	Numbers to be taken from your *Diagonal Scale.*
200	2.301030	301
300	2.477121	477
400	2.602059	602
500	2.698970	699
600	2.778151	778
700	2.845098	845
800	2.903089	903
900	2.954254	954
1000	3.000000	

The whole *Radius* of your *Diagonal Scale* = 1000.

The *Diviſions* of the *Tenths* between each of the *Primes* are found thus: Look in the Table of *Logarithms* for 11, or for 110 (it matters not which, becauſe 1 at the *Beginning* of the Line and *one Tenth* is 11) and take out its *Logarithm* .041393 (omitting the *Characteriſtick* and the *three laſt* Figures) and there will remain .041, which take from the *Diagonal Scale*, and ſet from 1, to *one Tenth*, on the *Line of Numbers: Again*, look into the Table for 12 or for 120, and againſt it you will find .079181 take 79 from your *Diagonal Scale*, and ſet from 1 to the *ſecond Tenth* in the *firſt Prime:* Proceed thus for all the intermediate Diviſions in the Line of Numbers: But for your better Information, I ſhall inſert the following Table.

A Table *for* dividing *the* Line of Numbers *to any* Radius *whatſoever.*

N°	Log.	N°	Log.	N°	Log.	N°	Log.	N°	Log.
1	00	21	322	41	612	61	785	81	908
2	30	22	342	42	623	62	792	82	914
3	47	23	362	43	633	63	799	83	919
4	60	24	380	44	643	64	806	84	924
5	70	25	398	45	653	65	813	85	929
6	78	26	415	46	663	66	819	86	934
7	84	27	431	47	672	67	826	87	939
8	90	28	447	48	681	68	832	88	944
9	95	29	462	49	690	69	839	89	949
10	100	30	477	50	700	70	845	90	954
11	041	31	491	51	707	71	851	91	959
12	079	32	505	52	716	72	857	92	964
13	114	33	518	53	724	73	863	93	968
14	146	34	531	54	732	74	869	94	973
15	176	35	544	55	740	75	875	95	978
16	204	36	556	56	748	76	880	96	982
17	230	37	568	57	756	77	886	97	987
18	255	38	580	58	763	78	892	98	991
19	279	39	591	59	771	79	898	99	996
20	301	40	602	60	778	80	903	100	1000

This Table is taken from the Table of Logarithms, as has been taught above.

2. The

Shewing how the Malt Line is put on the Rule.

2. The *Line* called the *Malt-Depth* marked M D, is nothing but *the Line of Numbers* turned the *contrary Way*, and is ſo ordered that the Number 1 on M D may ſtand *exactly even* or right againſt N B on the Line A, and then all the other Diviſions will fall in their true Places. By this means, any Number on A or B, *multiplied* by any Number *directly under* it on the Line M D, will *always* be *equal* to 2150.42 the Number of *Inches* in a *Malt-Buſhel*.

Shewing how the Line of *Segments* is put upon the Rule.

3. The *Line* of *Segments* for the *middle Fruſtum* of a *Spheroid lying*, may be put upon the *Sliding Rule* in the following Manner: Take ſome Veſſel *lying*, as a *Butt*, and fill it full of Water, then find its Content in *Ale* or *Wine* Gallons, (for it matters not which) take alſo its *Bung Diameter* in *Inches* and *Decimal Parts*. Now to find againſt what Number, on the Line of Numbers of the *Sliding Piece*, any Diviſion of the *Line* of *Segments* muſt ſtand; ſuppoſe the Diviſion 1, I ſay as *Unity* is to .01, ſo is the *Content* of the aforeſaid Veſſel in *Gallons* to a *fourth Number*, which will be the *Gallons*, or *Gallons and Parts* that are contained in ſuch a *Segment* of the Veſſel; as .01 is of a *ſimilar* Veſſel, whoſe *Area* is ſuppoſed *Unity*; then let out of the Veſſel as many *Gallons* as that *fourth Proportional* directs, and having taken the *dry Inches*, ſay, by the Rule of *Three Direct*, As the *Bung Diameter* is to thoſe *dry Inches* found, ſo is 100 to a *fourth Number*; which will be the Number on the *Line of Numbers* marked N, againſt which the *Diviſion* 1, on the *Segment Line* muſt ſtand. *Again*, to find where the *Diviſion* 2 muſt ſtand on the *Line of Segments*, ſay, as 1 is to .02 ſo is the Content of the aforeſaid Veſſel to the *Gallons* that muſt be taken out of it; then ſay, As the *Bung Diameter* is to the *dry Inches*, ſo is the 100 on the Line N, againſt which the Diviſion 2 muſt ſtand. Proceed in this Manner for finding the *Diviſions* 3, 4, 5, 6, 7, 8, 9, and when you come to find where the Diviſion 10 muſt ſtand, you muſt ſay, As Unity is to the *Veſſel's Content*, ſo is 1 to the Number of *Gallons* to be taken out of the Veſſel; and go on as before.

Moreover, to find where the *Diviſion* 20 muſt ſtand, ſay, as 1, is to *the Content*, ſo is 2 to *the Number of Gallons to be taken out of the Veſſel*, &c. In this Manner may the Diviſions to 100 be found.

To find where the *firſt Subdiviſion* before 1 muſt ſtand: ſay, As 1 is to the *Veſſel's Content*, ſo is .002 to the *Number of Gallons to be let out of the Veſſel*, and proceed as at firſt directed. And for the *ſecond Subdiviſion*, make .003 the *third Term* of *the Rule of Three*, and proceed as before. For the *Subdiviſions* between 1 and 2, 2 and 3, *&c.* Suppoſe 1 to be .0100, then the *firſt Diviſion* from 1 will be .011, the *ſecond* .012, the *third* .013, *&c.* which muſt be made the *third Term* of the firſt *Rule of Three*, for finding where any of thoſe *Subdiviſions* muſt ſtand. And for the *Subdiviſions* between 10 and 20, 20 and 30, you muſt ſuppoſe 10 to be .10, and 20 to be .20; then the *firſt Subdiviſion*

Subdiviſion from 10 will be .11, the *ſecond* .12, the *third* .13, *&c.* which will be the third Term in the *Rule* of *Three*, for finding where theſe *Diviſions* muſt ſtand.

LASTLY, The other *Segment Line* on the ſame Face of the Rule, may be made in the ſame Manner as this, by ſetting the aforeſaid Veſſel *upright*, and making Uſe of the *Length* inſtead of the *Bung Diameter*. For the Line of Segments for *ſtanding* Caſks.

4. The *Conſtruction* of the Lines on the other *Edge* of the Rule for the *four Varieties of Caſks*, are thus; 1. For the *Spheroid*; if there be a *Caſk* in the *middle Fruſtum of a Spheroid*, *half* the *Difference* of the *Squares* of the *Bung* and *Head Diameter*, *added* to the *Sum* and *half Sum* of the ſaid *Squares*, *divided* by 3, will be the *Square* of the *mean Diameter* for a *ſpheroidal Caſk*, the *ſquare Root* of which will be the *mean Diameter*. 2. *Three Tenths* of the *Difference* of the *Squares* of the *Bung* and *Head Diameters*, *added* to the *Sum* and *half Sum* of the ſaid *Squares*, and the *whole divided* by 3, will be the *Square* of the *mean Diameter* of a *Caſk* of the *ſecond Variety*. 3. To the *Sum* and *half Sum* of the *Squares* of the *Bung* and *Head Diameters*, *and one Tenth* of the *Difference* of the ſaid *Squares*, which *Sum divided* by 3, gives the *Square* of the *mean Diameter* of a *Caſk* of the *third Variety*. 4. And *laſtly*, From the *Sum* and *half Sum* of the *Square* of the *Bung* and *Head Diameters*, *ſubtract half* the *Square* of *the Difference* of the *Diameters*, and the *Remainder divided* by 3, will be the *Square* of the *mean Diameter* of a *Caſk* of the *fourth Variety*, commonly called *the Fruſtum of a Cone*. The Lines for the 4 *Varieties* of Caſks.

12. The *Inſide* of the *two Sliders* are *divided* into *Inches*, and every *Inch* into 10 *equal Parts*; the other *Line* which lyeth by the Side of the *Line of Inches* is the *Area* in *Ale Gallons* and *Decimal Parts* of a *Gallon*; which by *the Rule* are made thus, *viz.* How the *Inſide* of the two Sliders are divided.

Set Unity *on* C.
To A. G. the *Ale Gauge Point* upon D.
And againſt *any Diameter* on D,
Is the *Area* in *Ale Gallons*, and *Decimal Parts* of a *Gallon* upon C.

How to find the *Ale* Area.

So as the Rule now ſtands, it is a Table for all *Diameters* whatſoever.

Note, The *Gallons* are put in *large* Figures, and the Tenths of a Gallon in *ſmaller* Figures; every *Tenth* of a *Gallon* is *divided* into *five* by a *ſmall Diviſion*, *every one* of which ſignifies *two hundred Parts* of a *Gallon*. By which I ſee as the Rule now ſtands, that a *Tub* of 19 *Inches Diameter* will hold a little more than *one Gallon* upon an *Inch deep*; and 24 *Inches Diameter* gives for the *Area* 1 *Gallon* and 6 *Tenths*; 30 *Inches Diameter* gives 2 *Gallons* and a *half*, and 36 *Inches Diameter* gives 3 *Gallons* and 6 *Tenths* of a *Gallon* for the *Area*, or what ſuch a Veſſel holds at *one Inch deep*, which in the *Gauger*'s Phraſe is called the *Area*.

13. *Conſtruction* of the *four Foot* Gauging Rod.

Of the *four* Foot Gauging Rod.

1. This Rod*, whoſe uſe is to find the Quantity of Liquors contained in any Kinds of Veſſels, is uſually made of *Box*-wood, and conſiſts of *four* Rules, *each* a *Foot long*, and about $\frac{1}{2}$ an Inch *ſquare*, join'd together by *three* Braſs Joints; by which means the Rod is rendered *four Foot long*, when the four Rules *are quite opened*, and but *one Foot* when they are *folded together*.

Of the Line of *Ale Areas*.

2. On the *firſt Face* of this Rod is a Line of *Inches* placed, (and ſometimes with it a Line of *Ale Areas*) *decimally* divided; whoſe Uſe is to take Gauges of *Ale*, *Wine*, *Malt*, &c.

Of the *Diagonal* Lines. See Plate 4, Fig. 3.

3. *Two diagonal* Lines are placed near the Line of *Inches*, one for *Ale*, and the *other* for *Wine*, to find the Content of any *Spheroidal* Caſk, by putting the Rod in at the *Bung* of the Veſſel till the Interſection of the *Head* of the Veſſel meet with the Staves *oppoſite* to the *Bung-Hole*, ſo that B F is the *Diagonal* Line.

How the *Diagonal* Line is made for *Ale*.

4. By the *Bung*, *Head*, and *Length* of a Caſk we find its Content, in *Ale* and *Wine* Gallons, and alſo the Caſk's *diagonal Line*, as has been ſhewn in Page 25. *For*

As the *Content of* any *Caſk* in *Ale* or *Wine Gallons*,
Is to the *Cube* of its *Diagonal*;
So is the *Content* of any *other Caſk*,
To the *Cube* of its *Diagonal*.

Example I. for ALE.

An Example of *Ale*.

Let it be required to find by the *four Foot* Gauging Rod, the *Length* of the *Diagonal Line* of a *ſpheroidal* Caſk, whoſe *Content* is 10 *Ale Gallons?*

Say, as 48.3 the *Content* in *Ale Gallons*, is to the *Cube* of its *Diagonal* 21647.657403, ſo is 10 *Gallons* to 4481.91664, whoſe *Cube-Root* is 16.44 the *Anſwer*.

See Plate 1. Fig. 13. which is the ſame, only it is but 3 Feet long.

So that at 16.44 *Inches* upon the *Four Foot* Gauging Rule, you place 10 *Ale Gallons:* But this is performed more expeditiouſly by the *Sliding Rule*, thus:

Set 2-.8 on D, to 48.3 on E, and *as the Rule now ſtands* it is a *Table*; ſo that againſt any *Number* of *Gallons* on the *Line* E; you have on the *Line* D, the *Length* of the *Diagonal* in *Inches* and *decimal Parts*; Thus,

If the Contents *in* Ale *Gallons be*	10	20	30	40
The Diagonal Line *will be*	16.44	20.8	23.8	26.25

Example II. for WINE.

An Example of *Wine*.

Let the *Dimenſions* of a *Spheroidal* Caſk be as above, the *Content* in *Wine Gallons* will be 58.97; then for the *Diagonal*, ſet

* There is a *four Foot* Guaging Rod contrived by Mr. *Branan*, ſome time a Collector of the Exciſe, which alſo ſerves for a *Sliding Rule*; the *middle Joint* is made with a *Socket* to take in and out; ſo that when each two Foot is ſhut (they are made with the common Gauging Lines on them) they *ſlide* one by the Side of the other; and it anſwers every Purpoſe of our Sliding Rule above deſcribed.

ſet 27.8 on D, to the *Content* 58.97 on *E*, and *as the Rule now ſtands* you have the *Wine Diagonal* for a *Spheroidal* Caſk. *Thus*,

If the Content in Wine Gallons be	10	20	30	40
The Diagonal Line will be	15.32	19.32	22.1	24.36

And ſo the Rule will ſhew you the *Diagonal* anſwering for any other Quantity.

Lines for *London* Caſks, *Ale* and *Beer* Meaſure, when not full.

5. *Lines* adapted to the *London Caſks* * are placed on the *other Faces* of this *Four Foot* Gauging Rod, *viz.* 1. A Line for a *Butt ſtanding*. 2. For a *Butt lying*; each of which contains 108 Gallons, *Beer Meaſure*. 3. A Line for the *Hogſhead* containing 54 *Gallons*. 4. A Line for the *Barrel* of 36 *Gallons*. 5. A Line for a *Kilderkin* of 18 *Gallons*. 6. A Line for a *Firkin* of 9 *Gallons*. Then to gauge any of theſe Caſks in *London*, there is no more to do than to put in your Rod *perpendicular* at the *Bung*, &c. and if the Caſk *is not full* it gives you the *Ullage* † without any farther Trouble.

6. For the ſame Purpoſe there are alſo Lines put on *Four Foot* Gauging Rods for *Wine Meaſure*; as 1. A *Ton* of 252 *Gallons*. 2. A *Butt* of 126 *Gallons*. 3. A *Puncheon* of 84 *Gallons*. 4. A *Hogſhead* of 63 *Gallons*. 5. A *Tierce* of 42 *Gallons*. 6. A *Barrel* of 31 ½ *Gallons*. 7. A *Runlet* of 18 *Gallons*. And *laſtly*, an *Anchor* of 9 *Gallons*: By theſe Lines all Brandies and Oils are gauged.

How thoſe Lines for *London* Caſks are made.

7. Theſe Lines for *London* Caſks are made, by ſetting the Veſſel *level*, and pouring in *one Gallon* of Water, and then put the Rod *downright* into the *Bung-hole* (if it is a *lying* Caſk;) or at the *Head*, (if a *ſtanding Caſk*) and where the *Surface* of the Water cuts the Rod, make a *Mark* or *Diviſion* for *one Gallon*; then pour in *another Gallon*, and where the *Surface* of the Water cuts the Rod, make the *Diviſion* for *two* Gallons: Again, pour in another Gallon, and where the Surface of the Water cuts the Rod make the *Diviſion* for *three* Gallons: Procced thus, by pouring in *one* Gallon *ſucceſſively* after another, and make *Diviſions* at every Place on the Face of the Rod, to which the Water riſes till the Caſk be full; and then you have the *Scale* for *that* Caſk properly divided: Proceed in the ſame manner for every one of the *London* Caſks above-mentioned, and all the *Lines* will be finiſhed when *figured*.

Note, The Diviſions for *Quarts*, marked by *Dots* on the Rod, are made by pouring in a *Quart* of Water *ſucceſſively*, and that you may never be at a Loſs to know what Caſk is in Hand, the Rod will ſhew you; for by meaſuring the *Depth* of the *Bung*,

* *Note*, The Dimenſions of the *London* Caſks are eſtabliſhed by Act of Parliament: The Coopers dare not make the Caſk otherways, on a Penalty of 3*s*. 4*d*. for every Offence, Stat. *Hen.* VIII.

† The *Ullage* of a Caſk is what it wants of being full.

&c. if it cut 36, 'tis a *Barrel*, if 18 *Gallons* 'tis a *Kilderkin*, *&c.* and by the *Line* for *that* Caſk you muſt take its *Ullage*.

☞ The guaging Rod, *Plate* 1. *Fig.* 13. is only 3 Feet, or 36 Inches long; it is *decimally divided*, and has *two Diagonal Lines*, *one* for *Ale*, and the *other* for *Wine*, which are made as is ſhewn in *Page* 34.

CHAP. XI.

Of Numeration *on the* Sliding Rule.

See Plate A. Fig. 1. How to *number* on the *Rule*.

THE *Lines of Numbers* upon the *Sliding Rule* are laid down from the *Logarithms*, as has been ſhewn in Page 30, and are compoſed of a *ſingle* or *double Radius*; and the ſeveral Lines are marked at the *End* with A, B, C, D, N, *&c.* For Diſtinction Sake, *each Radius* is divided into *nine* equal Parts in a *geometrical* Proportion, and *figured* 1, 2, 3, 4, 5, 6, 7, 8, 9, called *Primes*, whoſe Signification are *arbitrary*.

See Plate A. Fig. 1.

Theſe Diviſions are *again divided* (when the firſt Diviſions are *large*) into *five equal Parts*, called * *Centeſms*. Now the *firſt Figure* at the Beginning of the Rule to the *Left-hand* may repreſent either .1, 1, 10, 100, 1000, and the *ſame Figure* in the *Middle* of the Rule, if a *double Radius*, may repreſent 1. 10. 100. 1000. 10000, and at the *End* to the *Right-hand* it may repreſent 10. 100. 1000. 10000. 100000 or 1000000, *encreaſing* in a *Ten-fold Proportion*; and the like may be ſaid of the *intermediate* Diviſions.

Another Way conceiving how to *number* on the *Rule*.

Again, the Method of *Numeration* upon the *Sliding Rule* may be conceived by this *ſingle* Conſideration, *viz.* that what *Name* or *Denomination* ſoever the 1 at the *Beginning* of the Line is of, the 1 in the *Middle* of the Line will repreſent *ten times* as many; and the 1 at the *End* of the Line will repreſent *an hundred times* as many: So that if what I have now mentioned is but well underſtood, it will not be difficult to conceive the Meaning of the *intermediate Figures* and *Diviſions*. For

If the Figure 1 *be conſider'd it may repreſent*	.1	*and the* larger *Diviſion will repreſent*	.01	*and then the* ſmaller *Diviſions will repreſent*	.002
	1.		.1		.02
	10.		1.		.2
	100.		10.		2.
	1000.		100.		20.

Upon *Sliding Rules* of a *Foot long*, theſe Diviſions are uſually placed from 1 to 3.

From

* *Centeſm* is the hundredth Part.

From 2 to 5 upon the Rule, the *Tenths* (or greateſt Diviſion) are only divided into *two* geometrical Parts, called *Centeſms*, Then,

If you conſider the Figure 2, it may repreſent	*and the larger Diviſions will repreſent*	*and the ſmaller Diviſions will repreſent*
.2	.01	.005
2.	.1	.05
20.	1.	.5
200.	10.	5.
2000.	100.	50.

From 5 to 10 upon the Rule, the *Primes* are divided into *Ten Parts* only, and the *Centeſms* muſt be gueſs'd at. For

If 5 be conſidered, it may repreſent	*and then the larger Diviſions will repreſent*
.5	.01
5.	.1
50.	1.
500.	10.
5000.	100.

Example I.

Let it be required to find any *Number* on the *Line* A, as ſuppoſe 2.15042, 21.5042, or 2150.42: Here obſerve, that if 1 *at the Beginning being accounted as Unity*, the 2 will be 2, and the *firſt grand* Diviſion will be 1, and the *ſmall* Diviſion will be 50, ſo that the 42 muſt be *gueſſed* at, it being but a very little more than the *ſmall* Diviſion or *Centeſms*. An Example on Line A.

Example II. If 21.5042 be required?

This will alſo be found at the *ſame Point*; for taking the *firſt* Figure for 10, the 2 will be 20, and the *intermediate* Diviſions will encreaſe in a *Ten-fold* Proportion, *viz.* the *Tenths* to *Unites*, and the *Centeſms* to *Tenths*, &c. A 2d Example.

Example III. If 2150.42 be required to be found on the Rule. A 3d Example.

The *firſt* Figure muſt be taken for 1000, then will the 2 be 2000, and the *firſt grand* Diviſion after the 2 will be 100, the *ſmall* Diviſion 50, and the 42 muſt be *gueſſed at:* ſo that 2.15042, 21.5042 and 2150.42 all fall at the *ſame Point*, M. B.

Again, If the Number 1.894 or 18.94 or 189.4 or 1894. be required on the *Line* D, any of theſe Numbers will anſwer the *Point* A G, for the Reaſons above mentioned.

Laſtly, If .785 or 7.85 or 78.5 or 785. were required to be found on the *Line* C, they will all fall at the *ſame Point*; it being the *Area* of a *Circle* whoſe *Diameter* is *Unity*.

Here *note*, that the *Diſtance* between the Figures 7 and 8 being *divided* into 10 *Geometrical* Parts, the Third Figure, *viz.* 5 is *ſuppoſed* to be in the *Middle* between two ſuch Diviſions, and therefore equal to .05, if the Diviſions be Tenths; or .5 if the Diviſions be Unites. If the Number had been 784, *ſomething leſs* than half the Space muſt have been took; if 786, *ſomething more*.

These Things being well conſidered, it will be eaſy to find any Number required in Practice, on the Rule; my next Buſineſs ſhall be to ſhew how to work any Number on the Rule.

CHAP. XII.

MULTIPLICATION *on the* Sliding Rule.

Of Multiplication on the Rule.

LOGARITHMS perform that by *Addition* and *Subtraction*, which *common Numbers* do by *Multiplication* and *Diviſion*; and the *Sliding Rule* at *once ſetting*, gives a Multitude of *Products* at *one View:* Obſerving this

RULE.

How to multiply on the Rule.

Set Unity, *or* 1, on either *of the* Lines *A or B*, *to* either Factor* *on the* Line of Numbers, *on either A or B*, *and* againſt *the* other Factor *on the* ſame *Line you had* Unity, *is the* Product *on* that Line *you had the* firſt Factor.

Example, Let the *Product* of 6 by 7 be ſought.

Operation.

An Example.

Set 1 upon B, to 6 upon A, and *againſt* 7 upon B is 42 upon A the Anſwer.

Or ſet 1 upon A, to 6 upon B, and *againſt* 7 upon A is 42 upon B the *Product* ſought. Therefore it matters not *which Line* you take *Unity* upon, ſo you have regard to take the *Second Factor* on the *ſame Line* you had *Unity*, then your *Product* will always be found upon *that Line* you had the *Firſt Factor*. And for the Learner's better Improvement, I ſhall inſert the following *Examples* in *Decimals*, with their reſpective *Products*.

Several Examples for Practice.

If you Multiply	by	the *Products* will be
7·3	20.2	147·5
5·7	13·5	77·
9·4	7.6	71·4
4·2	16.9	71.
6.8	13.1	89.1
14·3	15·7	224·5
1·5	33.8	50·7
18.6	6.2	115·3
3·3	25·4	83.8
8.9	9·3	82.8
7·7	12.9	99·3
27·1	5·5	149.1
2.7	6.8	18.4

CHAP.

* The Multiplicand and Multiplier are called Factors.

CHAP. XIII.

Of DIVISION *on the* Sliding Rule.

MULTIPLICATION and *Diviſion* are a *Proof* of each other; and the *Sliding* Rule is an excellent *Proof* of any thing that is done in *practical Mathematicks* by *Numbers:* For if the *Product* of any *Multiplication* be *divided* by *either Factor*, the *Quotient* will be the *other Factor*, as appears by the following *Examples*. Of Diviſion on the Rule.

The RULE.

Set Unity *or* 1, on either *of the Lines A or B, (it matters not which) to the* Diviſor *on the* other Lines. How to multiply by the Rule.

And *againſt* the *Dividend* on the *ſame* Line you had the *Diviſor*, you will have the *Quotient* on the ſame *Line* you had *Unity*.

Example. Let the *Quotient* of 42 *divided* by 6 be ſought. An Example.

Operation.

Set 1 upon B, to 6 the *Diviſor* upon A, and *againſt* 42 the *Dividend* upon A, is 7 the *Quotient* upon B.

Or,

Set 1 upon A to 6 upon B, and *againſt* 42 upon B, is 7 upon A, the *Anſwer* required.

After this Manner examine the following *Examples*, which are the *Products* of the *Multiplications* in the foregoing Chapter *divided* by the *Multipliers*.

Divide	by	and the *Quotients* will be
147·5	7·3	20.2
77.	5·7	13·5
71·4	9·4	7.6
71.	4·2	16.9
89.1	6.8	13.1
224·5	14·3	15·7
50.7	1·5	33.8
115.3	18.6	6.2
83.8	3·3	25·4
82.8	8.9	9·3
99·3	7·7	12.0
149.1	27.1	5·5
18.4	2.7	6.8

Several Examples for Practice.

CHAP. XIV.

Of the ſingle *Rule of* Three Direct, *on the* Sliding Rule *.

Of the Rule of Three on the Sliding Rule.

IN *Numbers* the *Firſt* and *Third* Terms muſt be of *one Name*, and here upon the *Rule*, the *firſt* and *third Numbers* or Terms, muſt always be had upon the *ſame Line* A or B; and the *ſecond* and *fourth* Terms muſt be found on the *other Line* either A or B, it matters not which: And that you may fully underſtand to work any *Proportion* on the *Sliding Rule* obſerve this

The Rule.

General RULE.

As the firſt *Term upon A,*
Is to the ſecond *Term upon B,*
So is the third *Term upon A,*
To the fourth *Term upon B,*

That is, ſet the *firſt* Term upon A to the *ſecond* upon B, and *againſt* the *third* Term upon A, is the *Anſwer* upon B, &c.

Or,

As the firſt *Term upon B,*
Is to the ſecond *Term upon A,*
So is the third *Term upon B,*
To the fourth *Term upon A,*
Which is the Anſwer *ſought.*

An Example.

Example. If 8 Yards of Cloth *coſt* 32*s.* what will 20 Yards coſt at *that Rate.*

Operation,

	A		B		A		B.
As	8	*is to*	32	*ſo is*	20	*to*	80.
	B		A		B		A.
As	8	*is to*	32	*ſo is*	20	*to*	80.

Here you ſee the *firſt* and *third* Terms are taken upon the *ſame Line*, and the *ſecond* and *fourth* are found upon the *other*; and

* *Note*, The Sliding Rule is of moſt excellent Uſe to thoſe ſkill'd in *Aſtronomy*, as I have mentioned in my *Syſtem*, Vol. 1. Page 317. This will be more clear by an *Example*.

Admit the *Moon* move 14° 36′ in *one Day*, or 24 Hours, how much will ſhe move in 10 *Hours*, 24 *Minutes*.

A.	B.	A.	B.
h.	° ′	h. ′	° ′
As 24 :	14 36	: : 10 24 :	6 19

Note, From 1 to 2, on the Line A, *every grand* Diviſion is 6 *Minutes*, and *every ſmall* Diviſion is 12 *Seconds*, but from 2 to 5, *every ſmall* Diviſion is 30 *Seconds*; and from 5 to 10, *every ſmall* Diviſion is 6 *Minutes*; and from 10 to 20, *every ſmall* Diviſion is 12 *Minutes*; but from 20 to 24, *every ſmall* Diviſion is 30 *Minutes*; and thus by minding the *Numeration* on the *Rule*, it anſwers the *Logiſtical Logarithms* in any Caſe, with *ten times* more Expedition, as I prove in my *Aſtronomical Calculation*; for I do that in a *Minute* which another Perſon, unſkill'd in the *Sliding Rule*, cannot perform in *ten*,

and in both Operations the ſame is obſerved; which being well underſtood, you may work any *Proportion* whatſoever.

Here follow ſome *Examples*, for Practice.

More Examples for Practice.

A.	B.		A.	B.
As 7.8	*is to* 5.4	*ſo is*	11.2	*to* 7.75
12.4	21.7		8.8	15.4
4.9	13.5		26.3	72.4
15.5	27.5		48.1	83.3

CHAP. XV.

Of the Rule of Three Inverſe *on the* Sliding Rule.

Of the Rule of Three Inverſe.

RECiprocal, or *inverſe* Proportion, is when the *firſt Term* bears the ſame Proportion to the *third*, as the *ſecond Term* does to the *fourth*.

1. *Of* SINGLE *Proportion.*

As the third *Term upon A,*
Is to the firſt *upon B,*
So is the ſecond *Term upon A,*
To the fourth *upon B*, & contra.

An Example.

Example. If 12 Men can do a Piece of Work in 18 Days, how long will 6 Men be in doing the ſame?

Operation,

Men Men Days Days
As 6 *is to* 12 *ſo is* 18 *to* 36.

Several Examples for Practice.

More *Examples* for Practice.

A.	B.		A.	B.
Men	*Men*		*Days*	*Days*
As 12	*is to* 6	*ſo is*	36	*to* 18
Days	Days		Men	Men
18	36		6	12
36	18		12	6
48	12		8	2
Men	Men		Days	Days
2	8		12	48

Of ſtating the Queſtion.

Or, if you ſtate the Queſtion as in common Arithmetic, ſo that the *Suppoſition* may lie in the *two firſt* Terms, and the *Demand* in the *Third*, the *Firſt* and *Third* being of *one Name*, the *fourth* Term or *Anſwer* will be of the *ſame Name* with the *ſecond* or *middle Term*; then *multiply* the *firſt* and *ſecond* Terms *together*, and divide the *Product* by the *third* Term, (as has been taught in the 12th and 13th *Chapters* of this Work) the *Quotient* thence ariſing will be the *fourth* Term or *Anſwer*, in a *Reciprocal* or *inverſe Proportion*.

Then

Then the *firſt Example* above, when ſtated, will ſtand thus:

M. D. M. D.
If 12 : 18 :: 6 : 36

Now by the *Sliding Rule*, the *Product* of the *firſt* and *ſecond* Terms is 216, which *divided* by the *third* Term 6, as directed in the 13 *Chap.* the *Quotient* is 36, *the fourth proportional* Term in an *Inverſe Proportion*. And after this Manner may you work Queſtions in *plural* Proportion, *Fellowſhip*, &c. by *multiplying* and *dividing* as the Queſtion requireth; which has been ſhewn above.

2. *Of* Duplicate *Proportion.*

Of *duplicate* Proportion.

Definition. This Rule chiefly concerns the *Proportion of Lines* to *Superficies*, or of *Superficies* to *Lines*, in which are *three* Numbers given to find a *Fourth* in a *Duplicate* Proportion.

An Example.

Example I. Let the *Diameter* of a *Circle* be 12 Inches, its *Area* is 113.1, what will be the *Area* of *another* Circle, whoſe *Diameter* is 24 Inches?

Operation.

B. A. B. A. B. A. B. A.
As 12 : 113.1 :: 24 : 226.2 Then as 12 : 24 :: 226.2 : 452.8

Note, if you put 24 in the *ſecond Term's Place*, then the *Anſwer* will be had without ſtirring the *Slider* B.

Now take the Reverſe of the former Queſtion.

The *Areas* of *two* Circles with the *Diameter* of *one* of them, being given to find the *Diameter* of the *other* Circle.

A ſecond Example.

Example II. Let *two* Circles be given, the *Area* of *one* is 452.8, and its *Diameter* 24 Inches, the *Area* of the *other* Circle is 113.1 *Inches*; I demand the *Diameter* of *that* Circle?

Operation.

B. A. B. A.
As 452.8 : 24 :: 113.2 : 6 whoſe *Double* is 12 the *Diameter* ſought. *But* if you take the *leſſer* Circles, the two firſt Terms, *i. e. Area* and *Diameter* in the *Suppoſition*, to find the *Diameter* of the *greater* Circle, then the *fourth proportional* Term is the *double* of the *Diameter* ſought.

B. A. B. A.
As 113.2 : 12 :: 452.8 : 48, *half* of which is 24, the *Diameter* ſought.

3. *Of* Triplicate *Proportion.*

Of *Triplicate* Proportion.

Definition. This Rule concerneth the *Proportion* between *Lines* and *Solids*, in which are *three* Numbers given, to find a *fourth* in a *Triplicate* Proportion.

An Example.

Example I. Suppoſe an *Iron Bullet*, whoſe *Diameter* is 4 *Inches*, weigh 9.26 *Pounds*, what will *another Bullet* weigh whoſe *Diameter* is 8 *Inches?*

Operation.

Operation.

B.	A.	B.	A.	
As 4 *is to* 8	*ſo is*	9.26 18.52 37.04	*to*	18.52 37.04 74.08

The *Anſwer in* Pounds.

More Examples for Practice.

And this without moving the Rule when once ſet.

Note, The *Solidity* of a Bullet* whoſe *Diameter* is 4 *Inches*, is 33.5 Inches, and that *multiplied* by 4.422979 and *divided* by 16 (the *Ounces* in a *Pound Avoirdupoiſe*) *Quotes* 9.26 *Pounds*. *Alſo* the *Weight* of a *Bullet* whoſe *Diameter* is 8 *Inches* will by the ſame Rule be found to be 74.14 *Pounds*.

A Note.

Example II. If a *Gun* of 5 *Inches Diameter* require for its *due Charge* 16 *Pounds of Powder*; how much *Powder* will a *Gun* of 4 *Inches Diameter* require for its *due Charge* of the *ſame* Powder?

A ſecond Example.

Operation.

As 5 *is to* 4	*ſo is*	16 12.8 10.24	*to*	12.8 10.24 8.192	The *Anſwer* in Pounds.

More Examples.

without moving the Rule when once ſet.

CHAP. XVI.

To find a Geometrical mean Proportional† *between any* Two *given* Numbers.

TO find a *Geometrical Mean* is of great Uſe in all Sorts of *Menſurations*, which are to be wrought by the *Sliding Rule*; as you will the better perceive by reading what follows.

Of a Geometrical mean Proportion.

The RULE.

The Rule.

Set one *of the* given Numbers *on D, to the* ſame Number *upon C, and* againſt the other Number *upon C, is the* Geometrical Mean *upon D*.

This is always wrought upon the Lines C and D.

Example I. I demand the *Geometrical Mean* between 4 and 6.

See *Page* 24.

Operation.

Set 4 upon D, to 4 upon C, and againſt 6 upon C, is 4.89 upon the Line D, the *Anſwer* required.

An Example.

Example II. What's the *Geometrical Mean* between 20 and 30?

Operation.

* See the Table of *Specific Gravity* hereafter. CHAP. XXXII.

† A *mean* or *middle Proportional* between any *two* Numbers, is that which hath the ſame *Proportion* to the *third Term* that the *firſt* bears to *it*. Thus 8 is a *mean Proportional* between 2 and 32, becauſe as 2 is to 8, ſo is 8 to 32.

Operation.

Set 30 on D, to 30 on C, and *againſt* 20 on C, is 24.49 on D the *Anſwer*.

A Note. *Note*, It matters not *which of the two Numbers you take firſt*; for if I had ſet 20 to 20, in *this* Example, or 6 to 6 in the *firſt* Example, the *Anſwers* would have been the ſame as by Trial you may find. Here follow ſome more *Examples* for *Practice*.

Several Examples for Practice.

What's the *Geometrical Mean* between		And		*Anſwer*
	16		27.4	20.93
	24.5		12.	17.1
	12.8		40.5	22.8
	29.2		50.1	38.2
	40.1		18.6	27.3
	81.		25.	45.
	21.4		36.5	28.6
	32.		62.	44.6
	46.6		100.75	68.5
	3.4		12.5	5.9

CHAP. XVII.

To extract *the* Square Root *upon the* Sliding Rule.

To extract the *Square Root*. TO perform this, there is no more to do than to *ſet* the Lines C and D *even*; that is to ſay, ſet *one* on C to *one* on the Line D, and *as the Rule now ſtands*, it is *a Table* for the *Extraction* of any *Square Root* whatſoever.

So that if you look for any *Square Number* on C, right againſt it on the Line D is the Root thereof.

Example. If you will have the *Square Root* of 9, you will find it to be 3.

More *Examples* for *Practice*.

Several Examples for Practice.

If the *Square Number* is		*The Square Root* will be	
	16		4
	25		5
	144		12
	2401		49
	3249		57
	6561		81

To *extract* the *Square Root* by the *Sliding Rule* on the Lines A and B.

* Move the *Slider*, 'till you make the *ſame Number* upon the *Rule* anſwer 1 on *the Slider*, as 1 on *the Slider* anſwers the *Square*

* See J. VERO's *Exciſe* and *Malt-Examiners* Aſſiſtant, uſeful alſo for *Superviſors* and *Officers*.

Square Number on *the Rule*, which Number will be the *Square Root* ſought.

Thus,

A.		B.		B.		A.
9	:	1	: :	9	:	81
8	:	1	: :	8	:	64
7	:	1	: :	7	:	49
6	:	1	: :	6	:	36
5	:	1	: :	5	:	25
4	:	1	: :	4	:	16
3	:	1	: :	3	:	9
2	:	1	: :	2	:	4
				Root.		Square.

CHAP. XVIII.

The Extraction *of the* Cube Root *by the* Sliding Rule.

TO perform this you have nothing more to do than to ſet the Lines D and E, *even*; and then *againſt* any *Cube Number* upon E, is the *Root* upon D: And *as the Rule now ſtands*, it is a *Table* of *Cubes*, and their Roots of any Number whatſoever.* To extract the Cube Root.

Example. Admit 1728 were a *Cube Number*, and its *Root* required. An Example.

Operation.

Firſt, Seek for 1728 upon the Line C; which found, make a Dot upon the Rule with the Pen; then *move* the Slider, *(either way)* until the *Number* 1728, on C, cut the *ſame Number* on D, that 1 upon D doth upon C, which are 12 on both Lines; ſo I conclude that 12 is the *Cube Root* of 1728, as was required. And by the *ſame Rule* you will find the *Roots* of theſe.

If the *Cube Number* is	the *Cube Root* will be
117649	49
74088	42
729	9
512	8
343	7
216	6
125	5
64	4
27	3
8	2
1	1

Several Examples for Practice.

To

* But if you have a *Sliding Rule* (ſuch as *Vero's*, *&c.*) that has not on it the *Cube Line*, this Defect may be ſupplied by the Lines C and D, thus: Find the *given Cube Number* upon the Line C, then move the *Slider* C, *(any way)* until that *Cube Number* ſtand againſt the *ſame Number* on the Line D, that 1, on the ſaid Line D, doth on the *Slider* C; then will *Unity*, or 1 on D, *cut* the *Cube Root* upon the *Slider* C. This Hint I had from Mr. *Charles Eades*, late Maſter of the Mathematical School at *Peterſfield*, in *Hampſhire*.

The Proof.

To *prove* the Truth of the above Method of *extracting the Cube Root* upon the Lines C and D, I have taken no ſmall Pains to examine it; and I find it to be very juſt (though a little troubleſome) as I thus prove.

Set 1 or 10 (according as your Number is for Largeneſs) on D, to the *Root* upon C, and *againſt* the *Cube Number* on C, is *another Root* upon D, that is a *Number equal to*, or the *very ſame* with the *Cube Root*.

Example. Set 10 upon D, to 9 (the *Cube-Root* of 729) upon C, and *againſt* 729 upon C, is 9 upon D.

Again, Set 10 upon D, to 8 upon C, and *againſt* 512 upon C, is 8 upon D, a *Number equal* to the *Root*.

Alſo, Set 10 upon D, to 7 upon C, and *againſt* 343 upon C is 7 upon D; and thus you may *examine* and *prove* the *Extraction* of any *Cube Root* whatſoever.

Plate 1. *Fig.* 13. The Gauging *Rod* or *Cane*, is no more than a ſtraight ſlender *Cane* or *Holly-ſtick*, 36 *Inches* (more or leſs) *long*, *decimally divided*; its Uſe is to take *Ale* and *Malt* Gauges, and for gauging of *ſpheroidal Caſks* by help of the *two diagonal Lines* for *Ale and Wine*, which are explained in *Page* 34.

CHAP. XIX.

Of Diviſors, Multiplicators, *and* Gauge Points, *uſed in* Gauging, *and all Sorts of* Menſurations *whatſoever.*

Archimedes and *Metius*'s Proportions.

WE muſt carefully attend to the true *Ratio** of the *Diameter* of a Circle to the Circumference, which was firſt found near the Truth by *Archimedes*, and his *Proportion* was as 7 to 22, or according to *Metius* as 113 to 335; that is, if the *Diameter* of a *Circle* be 7 (of any thing whatſoever) then the *Circumference* would be 22; but this is not only erroneous, but alſo troubleſome, becauſe it requires both *Multiplication* and *Diviſion:* This might poſſibly invite the famous *Van Ceulen*† to ſearch more narrowly into the Affair, who after many tedious Trials found the *Circumference* of a *Circle* to be 3. and *thirty five* Decimal Places more; *that is*, if the *Diameter*

* When two *Quantities* or *Numbers* are compared with one another, in reſpect of their Greatneſs or Smallneſs, that *Compariſon* is called *Ratio*, and ſignifies the *Rate*, *Reaſon*, or *Proportion* that *one* hath to the *other*.

† *Ludolphus Van Ceulen* was born *Anno* 1540, died 1610, and lies buried in the great Church at *Leyden*, on whoſe Tombſtone are engraven the Numbers here ſpecified, with the Dates of his Birth and Death, as it was taken off and brought to me by one of my Pupils, who had been to viſit that Univerſity in *October* 1725. And beſides thoſe I have mentioned above, *Grimberger*, *Metius*, *Snellius*, and others, have wrote upon this Subject.

meter of a *Circle* be Unity or 1, then the Circumference is 3.14159265358979323846264338327950288: But that great Maſter of Numbers Mr. *Abraham Sharp* has *doubled* that Number of Places; and Mr. *John Machin* ſometime Profeſſor of *Aſtronomy* in *Greſham* College, and Secretary to the *Royal Society*, has carried it to 100 Places. But after all theſe great Numbers, they are no more than an *Approximations* *: however in Practice you never need to take any more than 3.14159. For that will be ſufficiently exact in any Thing of Buſineſs that may occur.

Hodgſon's Syſtem of the Mathematicks, Vol. I. Page 82. *Sharp* and *Machin's* Proportions.

1. Now according to the Demonſtration of *Archimedes* †, if we *multiply half the Circumference* of a Circle, by *half the Diameter*, the *Product* is the *Area* or *ſuperficial Content* of *that Circle*.

The Rule.

Example. Let the *Diameter* be 1, the *Circumference* is 3.141592

Of a Circumference and Diameter.

Half the Circumference	1.570796
Half the Diameter	.5
The *Area*, or ſuperficial Content	.7853980

2. If Unity be divided by its *Area* ‡ the *Quotient* will be 1.2732406; by which if you *multiply* the *Diviſor* for a *Square*, it will give you the *Diviſor* for a *Circle*, the *Square Root* of which will be the *Guage Point* on the *Sliding Rule*.

How to find Guage Points, &c.

Note, This Number 1.2732406 is the *Square* of the *Diameter* of a Circle, whoſe Area is *Unity*. For if the *Area* of any Circle be *multiplied* by 1.2732406, the *Product* will be the *Square* of the *Diameter*, whoſe *ſquare Root* is the *Diameter* of that *Circle*.

A Note.

You are to obſerve, that 12 *Inches long*, and 12 *Inches broad*, are 144, the *Inches in a ſquare Foot:* and that 282 *ſolid Inches* are an *Ale Gallon*, and 231 a *Wine Gallon*, and 2150.42 *cubic Inches* is a *Wincheſter* Buſhel; and 1728 are the *ſolid Inches* in a *Foot of Timber or Stone*, it being the *Cube* of 12.

How this is found, is ſhewn in Malt-gauging

	Area of Unity	*Unity*	*Quotient*
Example I.	.7853975	)1.000000000000000(	1.2732406

Now *multiply* 1.2732406 by the *Diviſor* for a *Square*, which will give the *Diviſor* for a *Circle* in *the ſame* Meaſure.

To find the Gauge Point for Ale.

The

* *Approximation*, in Arithmetic, is a continual Approach nearer ſtill, and nearer to a *Root* or *Quantity ſought*, without a Poſſibility of ever arriving at it *exactly*.—For it is evident, that if a Number propoſed *be not a true Square*, it is in vain to hope for a juſt *Quadratic Root* thereof, explicable by rational Numbers, *integers* or *fracted*; whence in ſuch Caſes, we muſt content ourſelves with *Approximations*, ſomewhat near the Truth, without pretending to Accuracy: and ſo for the *Cubic Root*, of what is not a perfect *Cube*; and the like for *ſuperior Powers*.

† A *Circle* is compoſed of an infinite Number of *Triangles*, whoſe *Baſes* are *equal* to the *Periphery*, and their *Perpendiculars* to the *Radius* of the *Circle*. Or, according to *Archimedes*, a *Circle* is *equal* to a *Triangle*, which hath for its *Baſe* the *Circumference*, and for its *Height* the *Semi-diameter* of the Circle. *Whiſton's Euclid*, Page 192.

‡ *Area* of any Figure in *Geometry*, is its *intimate* Capacity or *ſuperficial* Content.

The *Multiplier* or *Multiplicator* for reducing a *Square* to a *Circle* is 1.2732406

The *Diviſor*, for a *Square*, Ale Gallons 282

25464812
101859248
25464812

The * *Diviſor* for a *Circle* Ale Gallons 359.0538492(18.94 *Gauge Point* for *Ale*.

Example II. Of *Wine*.

To find the Guage Point for Wine.

The *Multiplier* for reducing *ſquare* Wine Gallons to a *Circle* is 1.2372406

The *Diviſor* for a *ſquare* Wine Gallon 231

12732406
38197218
25464812

The *Diviſor* for a *Circle* 294.1185786(17.14 *Gauge Point* for *Wine*.

Example III. Of *Malt*.

To find the Gauge Point for Malt.

The *Multiplier* for reducing the *ſquare* Malt Buſhel to a *Circle* is 1.2732406

The *Diviſor* for a *Square* Malt Buſhel 2150.418

101859248
12732406
50929624
63662030
12732406
25464812

The *Diviſor* for a *Circular* Malt Buſhel 2737.9995045708(52.32 *Gauge Point* for *Malt*.

Example IV. Of *ſquare Feet*.

To find the Guage Point for ſquare Feet.

The *Multiplier* or *Multiplicator* for reducing a *ſquare Foot* to a *Circle* is 1.2732406

The *Diviſor* for a *Square Foot* 144

50929624
50929624
12733406

The *Diviſor* for a *Circle Foot Meaſure* 183.3466464(13.54 *Gauge Point*.

Example

* The Square Root of this Diviſor 359.0538492, is the *Gauge Point* for *Ale Gallons*.

Example V. Of *ſolid Feet*. To find the Gauge Point for ſolid Feet.

The *Multiplier* for reducing the *ſquare ſolid* Foot to a *Circle* is 1.2742406

The *Diviſor* for a *ſolid Foot* 1728

101859248
25464812
89126842
12732406

Square Root, or *Gauge Point* for a *ſolid Foot*.

The *Diviſor* for a *Circle* for *ſolid Feet* 2200.1597568(46.9

These *Gauge Points* are the *Diameters* of *Circles* whoſe *Areas* are *one* Ale Gallon, *&c.*

Note, If theſe *Diviſors* for a *Square* be *divided* by the *Area of Unity* .7853975, the *Quotient* will be *equal* to theſe *Products*, which are the *Diviſors* for *Circles*. See Part II. Page 352.

And becauſe 34.8 are found to be the *ſolid Inches* in a *Pound* of *dry Starch* (perfectly made) and conſequently is a *Diviſor* for a *Square*, the *Diviſor* for a *Circle* and its *Gauge Point* are found thus;

Common Multiplier 1.2732406

Diviſor for a *Square* 34.809

114591654
101859248
50929624
38197218

Square Root, or *Gauge Point*.

For a *Circle* 44.3202320454(6.66

It often happens in Buſineſs, that when *one of the Numbers*, (given in the Queſtion) is ſet to the *Guage Point*, that the *other given Number* will *fall off the Rule*, which is remedied by finding a *new Gauge Point*, thus; ſet *Unity* on C, to the *Gauge Point* on D, and againſt the other 1, upon C, is the *new Gauge Point* upon D. How to find a new Gauge Point upon the Sliding Rule.

Example. Let it be required to find a *new* Gauge Point to 6.66. An Example.

Set 1 on C to 6.66 upon D, and *againſt* 1 on C, is 2.1, the *ſecond* Gauge Point upon D.

Theſe *ſecond* Gauge Points are the *ſquare Roots* of the *Diviſors* proper to any *Square* or *Circle multiplied* by 10; that is, in a *mixt Number*, only *removing* the *Dot one* Place nearer to the *Right Hand*. Thus 144 is a *Diviſor* for a *Foot Square*: Put a *Cypher* to it; thus 1440 and its *ſquare Root* is 37.94 the *ſecond Gauge Point* for a *Square*. And 133.34 being the *Diviſor* for a *Circle*, *remove* the *Dot one* Place to the *Right Hand*, What the ſecond Gauge Points are.

and it will be 1833.4; its *ſquare Root* is 42.8, the *ſecond Gauge Point* for a *Circle* in *Feet*. The ſame Method is to be obſerved in all the other *Second Gauge Points*.

Of Multiplication and Diviſion.

In *Page* 18 I have told you that any Thing may be done by *Multiplication*, as well as by *Diviſion*; which is to *divide Unity* by your *Diviſor*; and the *Quotient* is a *common Multiplicator*: Thus, for *ſquare Factors*.

144)1.0000000(.0069444 *Feet*.
•••••

282)1.0000000(.0035461 *Ale* Gallon.
•••••

231)1.0000000(.0043289 *Wine* Gallon.
•••••

2150.418)1.000000000(.000465 *Malt* Buſhels.
•••

30.28)1.00000000(.033025 *Tallow* Pounds.
•••••

Following Table how made.

So according to the above Method, I have calculated the following Table of *Factors*, *Diviſors*, and *Gauge Points*.

A TABLE

A TABLE of *Factors*; i. e. *Muitipliers*, *Diviſors*, and *Gauge-Points*, both for *Squares* and *Circles*, and their new *Gauge-Points*.

	Factors for Squares.	*Factors for Circles.*	*Diviſors for Squares.*	*Diviſors for Circles.*	1 *Gauge Point Squares.*	1 *Gauge Point Circles.*	2 *Gauge Point Squares.*	2 *Gauge Point Circles.*
Inches, the *Area* of *Unity*		.785398		1.27324		1.128		
A *ſuperficial* Foot	.0069444	.005454	144.	183.34	12.	13.54	37.94	42.8
A *ſolid* Foot	.0005787	.0004545	1728.	2200.158	41.569	46.9	13.141	2.166
Ale Gallon	.0035461	.0027851	282.	359.05	16.79	18.94	53.1	59.92
Wine Gallon	.0043289	.0033999	231.	294.118	15.19	17.14	48.06	54.22
At *London.* *Ale Barrel*, 32 Gallons	.001108	.000087	9024.	11498.71	94.99	107.19	300.39	338.96
At *London.* *Beer Barrel*, 36 Gallons	.0000985	.0000773	10152.	12925.93	100.75	113.63	318 62	359.52
In Country. *Ale and Beer Barrel*, 34 Gallons	.0001046	.0000821	9588.	12207.7	97.9	110.48	309.64	349.39
Winchester Buſhel	.0004651	.0003653	2150.4	2738.	46.37	52.32	14.56	16.54
Winch. Buſh. Allowance 4 in 20	.000372	.000292	2687.5	3421.8	51.84	58.49	16.39	18.49
Winchest. Buſhel Allow. 8 in 20	.0002791	.0002192	2583.3	4562.4	59.86	67.57	18.93	21.35
Winchest. Buſhel Allow. 10 in 20	.0002905	.0001826	4300.8	5476.	65.58	73.99	20.73	23.4
Winch. Buſh.—8 in 20, to 4 in 20	.0003485	.000274	2866.	3650.	53.53	60.4	16.92	19.1
Winch. Buſh. 10 in 20, to 4 in 20	.0002905	.0002183	3439.2	4380.	58.64	61.18	18.54	20.92
Tallow Pounds *Groſs*	.033025	.02594	30.28	38.55	5.502	6.209	1.74	1.96
Tallow Pounds *Neat*	.031844	.0251012	31.4	39.98	5.603	6.32	1.77	1.999
A *Pound* of *Hard Soap*	.036845	.028939	27.14	34.56	5.209	5.88	1.65	1.86
A *Pound* of *Green Soft Soap*	.038956	.0305997	25.67	32.68	5.06	5.716	1.6	1.8
A *Pound* of *White Soft Soap*	.0391235	.0307314	25.56	32.54	5.05	5.704	1.59	1.8
A *Pound* of *Green* or *Raw Starch*	.024561	.019291	34.8	44.32	5.9	6.66	1.4	2.1

A Note.

N. B. Theſe *Gauge Points* in this *Table* are the *Diameters* of thoſe *Circles*, whoſe *Areas* are equal to their *reſpective Diviſors*. But for *ſquare Veſſels*, the *Gauge Points* are the *Side of a Square* whoſe *Area* is equal to their reſpective *Diviſors*.

Multipliers for Circles, how found.

After the ſame Manner the Factors or *Multipliers* for *Circles* are found by dividing *Unity* by the *circular Diviſors*, thus:

183.34)1.000000000(.0054541 Foot.
.....

359.05)1.000000000(.0027851 Ale Gallon.
.....

294.12)1.000000000(.0033999 Wine Gallon.
.....

2738)1.000000000(.000365230 Malt Buſhel.
.....

38.55)1.00000000(.025940 Tallow Pounds.
.....

Or,

How found another Way.

The *ſame* Factors for *Circles* may be found by dividing the *Area* of *Unity* by the *Diviſors for Squares*, and the *Quotient* will be the *Multiplier* for *Circles*. The above *Factors* may alſo be found *thus:*

144).785398(.005454 Foot.
....

282).785398(.002785 Ale Gallon.
....

231).785398(.003399 Wine Gallon.
....

2150.418).785398(.0003652 Malt Buſhel.
....

30.28).785398(.0259 Tallow Pounds.

Of the Diameter and Area of a Circle.

Having the above *Diviſors* and *Multipliers*, if the *Diameter* of a *Circle* be *ſquared*, and *divided* by the *proper Diviſor*, the *Quotient* will be the *Area* of that *Circle*.

Or,

Another Way.

If it be *multiplied* by its proper *Factor*, the *Product* will be the *Area* of that *Circle* likewiſe.

An Example.

Example. Let the *Diameter* of a *Circle* be 24 *Inches*, I demand the *Area* in *ſquare Feet*, and alſo in *Ale Gallons*.

See the Work.

The Area in Feet by Multiplication.

By *Multiplication*.

The *Square* of 24=576
Multiplier for a *Circle* .005454

2304
2880
2304
2880

Answer 3.141504 *Feet*, the ſame as by *Diviſion*.

Here follows the ſame.

The Operation for *Feet*.

By *Diviſion*.

The ſame by Diviſion.

183.34)576.0000(3.14
550 02 ··

25980
18334

76460
73336

3124

The Operation for *Ale*.

By *Multiplication*.

The Area in Ale Gallons by Multiplication.

Multiplier for a *Circle* .0027851
Square of a *Diameter* 576

167106
194957
139255

Answer 1.6042176 *Ale Gallons* the ſame as by *Diviſion*.

The Operation for *Ale*.

By *Diviſion*.

The ſame by Diviſion.

359.05)576.0000(1.60
35905 ··

216950
215430

1520

Note, Theſe *Multipliers* are the reſpective *Areas* of a *Circle* whoſe *Diameter* is 1.

Thoſe Multipliers what.

The same Example for Feet by the Sliding Rule.

By the *Sliding Rule* on the Line A and B.

For *Feet*.

A.	B.	A.	B.
As 183.34	*is to* 24	*ſo is* 24	*to* 3.14
Diviſor	*Diameter*	*Diameter*	*Feet*, the *Area*.

Or,

By the *Gauge Point* on the Lines C and D.

D	C	D	C
As 13.5	*is to* 1	*ſo is* 24	*to* 3.14
Gauge Point	*Unity*	*Diameter*	*Area* in *Feet*.

The ſame Example for Ale Gallons by the Sliding Rule.

For the *Area* in *Ale* Gallons.

A	B	A	B
As 359.05	*is to* 24	*ſo is* 24	*to* 1.6
Diviſor	*Diameter*	*Diameter*	*Area*.

Or,

By the *Gauge Points* on the Lines C and D.

D	C	D	C
As 18.94	*is to* 1	*ſo is* 24	*to* 1.6
Gauge Point	*Unity*	*Diameter*	*Area*

A Note.

Note, If the *Square* of the *Diameter* of any *Circle* be *Multiplied* / *Divided* by .785398 / 1.273241 *Product* / *Quotient* is the *Area* in the *ſame Parts* that your *Dimenſions* are of.

In Plate I. Fig. 1, you have a View of all theſe Figures together.

And for the Benefit of the young Student, I ſhall here inſert, 1. The *Dimenſions* of a *Circle*. 2. The *Side* of the *Square equal*. 3. The *Side* of the *Square* inſcribed. And, 4. The *Side* of the *Equilateral* Triangle *inſcribed*, putting for the Diameter *Unity* or 1.

Diameter of a Circle.

1. If the *Diameter* of a *Circle* be 1.

Then the	Circumference — — —	is 3.141592
	Side of the Square equal ——	.886227
	Side of the Equilateral Triangle	.866024
	Side of the Square inſcribed	.707106
	Area ——— ———	.785398

Circumference of a Circle.

2. If the *Circumference* of a *Circle* be 1.

Then the	Diameter —— ——	is .3183101
	Side of the Square equal —	.282294
	Side of the Equilateral Triangle	.2756646
	Side of the Square inſcribed	.225079
	Area ——— ———	.079577525

Note, By the 2d and 12th Books of *Euclid's Elements*, it is demonſtrated that all *Circles* are in *Proportion* one to another, as the *Squares* of their *Diameters*.

3. If

3. If the *Side* of the *Square equal be* 1. Side of a Square equal.

Then the		is
Circumference		3.544907
Diameter		1.128379
Side of the Equilateral Triangle		.977205
Side Square inſcribed		.797 8844
Area		1.

4. If the *Side* of the *Equilateral Triangle* be 1. Side of the Triangle.

Then the		is
Circumference		3.627593973
Diameter		1.1547
Side of Square equal		1.02326015
Side of Square inſcribed		.81649
Area		1.048102588

5. If the *Square inſcribed* be 1. Square inſcribed

Then the		is
Circumference		4.44287741
Diameter		1.414213
Side of the Square equal		1.253313
Side of the Equilateral Triangle		1.224744
Area		1.570793

6. If the *Area* of a *Circle* be 1. Area of a Circle.

Then the		is
Circumference		3.544907
Diameter		1.128379
Side of the Square equal		1.
Side of the Equilateral Triangle		.9772048
Side Square inſcribed		.7978844

Here follows the *Uſe* of theſe Six *Proportions* laſt mentioned.

1. The *Diameter* of a Circle being given to find the *Circumference*. For Diameter and Circumference.

The RULE. The Rule.

If the *Diameter* of any *Circle* be

Multiplied / *Divided* by 3.14159 *the Product* / .31831 *the Quotient* is the *Circumference*.

Example. Let the *Diameter* of a Circle be 24 *Inches*, what is the *Circumference* in *Inches*. An Example.

By the *Sliding Rule*.

A	B	A	B
As 1 *is to*	3.14159 *ſo is*	24 *to*	75.4.
Unity	*Multiplier*	*Diameter*	*Circumference.*

For the Diameter and Side Square equal.

2. The *Diameter* of a *Circle* being given to find the Side of the *Square equal.*

The Rule.

The RULE.

If the *Diameter* of any *Circle* be

Multiplied / *Divided* } by { .886227 / 1.128379 } the *Product* / *Quotient* } is the *Side* of the *Square equal.*

An Example.

Example. Admit the *Diameter* of a *Circle* be 24 *Inches*, what's the Side of the *Square equal?*

Operation by the *Sliding Rule.*

A	B	A	B.
As 1 *is to*	886 *ſo is*	24 *to*	21.3
Unity	*Multiplier*	*Diameter*	*Side Square equal.*

For the Diameter and Side of a Triangle.

3. The *Diameter* of a *Circle* being given to find the *Side* of an *Equilateral* Triangle *inſcribed.*

The Rule.

The RULE.

If the *Diameter* of any *Circle* be

Multiplied / *Divided* } by { .866024 / .1547 } the *Product* / *Quotient* } is the *Side* of the *Equilateral* Triangle *inſcribed.*

An Example.

Example. Admit the *Diameter* of a *Circle* be 24 *Inches*, what's the *Side* of the *Equilateral Triangle?*

Operation by the *Sliding Rule.*

A	B	A	B
As 1 *is to*	.866 *ſo is*	24 *to*	20.8
Unity	*Multiplier*	*Diameter*	*Side Equilateral Triangle.*

For the Diameter and Side of a Square inſcribed.

4. The *Diameter* of a *Circle* being given to find the *Side* of the *Square inſcribed.*

The Rule.

The RULE.

If the *Diameter* of any *Circle* be

Multiplied / *Divided* } by { .707016 / 1.414213 } the *Product* / *Quotient* } is the *Side* of the *Square inſcribed.*

An Example.

Example. Admit the *Diameter* of a *Circle* be 24 *Inches*, what's the *Side* of the *Square inſcribed?*

Operation by the *Sliding Rule.*

A	B	A	B		B	A	B	A
As 1 *is to*	.707 *ſo is*	24 *to*	16.97	*Or as* 1 *is to*	.707 *ſo is*	24 *to*	16.97

5. The

* 5. The *Diameter* of a *Circle* being given to find the *Area* of that *Circle* in the *ſame* Meaſure that your *Diameter* is. For the Diameter and Area.

The RULE. The Rule.

If the *Square* of the *Diameter* of any *Circle* be

Multiplied / *Divided* } by { .785398 the *Product* / 1.273241 the *Quotient* } is the *Area*.

Example. Admit the *Diameter* of a *Circle* be 24 *Inches*, what's the *Area?* An Example.

Operation by the *Sliding Rule* per the *Factor*, or *Multiplier*. By Multiplication.

A	B	A	B
As 1 *is to*	24 *ſo is*	24 *to*	576 Then,
As 1 *is to*	576 *ſo is*	.785 *to*	452.4 Inches the Anſwer †.

Or on the *Sliding Rule* by *Diviſion*. By Diviſion.

A	B	A	B
As 1 *is to*	1.273 *ſo is*	576 *to*	452.4 as before
Unity	*Diviſor*	*Sqr. Diam.*	*Area.*

6. The *Circumference* of a *Circle* being given to find the *Diameter*. The Circumference and Diameter.

The RULE. The Rule.

If the *Circumference* of any *Circle* be

Multiplied / *Divided* } by { .31831 the *Product* / 3.14159 the *Quotient* } is the *Diameter*.

Example. Admit the *Circumference* of a *Circle* be 75.4, what's the *Diameter?* An Example.

Operation by the *Sliding Rule* by *Multiplication*. By Multiplication.

A	B	A	B
As 1 *is to*	.318 *ſo is*	75.4 *to*	24
Unity	*Multiplier*	*Circumference*	*Diameter.*

On

* Of this I have hinted in Page 52, but it is here more largely explain'd.

† *N. B.* The *Area* of the Circle above is 452.4 Square Inches, which

Divided by { 144. / 282 / 231 / 2150.4 / 30.28 } will give the *Area* of the Circle in { Feet *ſuperficial.* / Ale-Gallons. / Wine-Gallons. / Malt-Buſhels. / Pounds of Tallow *groſs.* }

Or,

N. B. You will have the ſame *Areas* as before, if the *Square* of the *Diameter* 576 be

Divided by { 183.34 / 359.05 / 294.118 / 2738. / 38.55 } the *Diviſors* for *Circles* taken from Page 47, will give the *Areas* in { Feet *ſuperficial.* / Ale-Gallons. / Wine-Gallons. / Malt-Buſhels. / Pounds of Tallow *groſs*, }

By Diviſion.

On the *Sliding Rule* by *Diviſion*.

A		B		A		B
As 1	*is to*	3.14	*ſo is*	75.4	*to*	24
Unity		*Diviſor*		*Circumference*		*Diameter*

In the Circumference and Side Square equal.

7. The *Circumference* of a *Circle* being given to find the *Side* of the *Square* equal to that *Circle*.

The Rule.

The RULE.

If the *Circumference* of any *Circle* be

Multiplied / *Divided* by .282094 the *Product* / 3.544907 the *Quotient* is the *Side* of the *Square equal*.

An Example.

Example. Admit the *Circumference* of a *Circle* be 75.4, what's the *Side* of the *Square equal?*

By Multiplication.

Operation by the *Sliding Rule*, by *Multiplication*.

A		B		A		B
As 1	*is to*	.282	*ſo is*	75.4	*to*	21.27
Unity		*Factor*		*Circumf.*		*Side Squ. equal, the Anſwer.*

Or,

By Diviſion.

On the *Sliding Rule* by *Diviſion*.

A		B		B		A
As 1	*is to*	3.54	*ſo is*	75.4	*to*	21.27
Unity		*Diviſor*		*Circumf.*		*Side Square equal.*

In the Circumference and Side of a Triangle inſcribed.

8. The *Circumference* of a *Circle* being given to find the *Side* of the *Equilateral* Triangle *inſcribed* in that *Circle*.

The Rule.

The RULE.

If the *Circumference* of any *Circle* be

Multiplied / *Divided* by .2756646 the *Product* / 3.6275939 the *Quotient* is the *Side of the Equilateral* Triangle *inſcribed*.

An Example.

Example. Admit the *Circumference* of a *Circle* be 75.4, what's *the Side* of the *Equilateral* Triangle *inſcribed?*

By Multiplication.

Operation by the *Sliding Rule*, per *Factor*, or *Multiplier*.

A		B		A		B
As 1	*is to*	.2756	*ſo is*	75.4	*to*	20.78
Unity		*Factor*		*Circumf.*		*Side Triangle.*

Or,

By Diviſion.

On the *Sliding Rule* by *Diviſion*.

A		B		A		B
As 1	*is to*	3.627	*ſo is*	75.4	*to*	20.78
Unity		*Diviſor*		*Circumf.*		*Side Triangle.*

9. The

9. The *Circumference* of a *Circle* being given to find the *Side* of the *Square inſcribed* in that *Circle*. For the Circumference and Side Square inſcribed.

The RULE. The Rule.

If the *Circumference* of any *Circle* be

Multiplied } by { .225079 } the *Product* { is the *Side* of the
Divided { by { 4.442877 } the *Quotient* { *Square inſcribed.*

Example. Admit the *Circumference* of a *Circle* be 75.4, what's *the Side* of the *Square inſcribed?* An Example.

Operation on the *Sliding Rule*, per *Factor*, or *Multiplier*. By Multiplication.

A		B		A		B
As 1	*is to*	.225	*ſo is*	75.4	*to*	16.97
Unity		*Factor*		*Circumf.*		*Side* of the *Square.*

Or,

On the *Sliding Rule* by *Diviſion*. By Diviſion.

A		B		A		B
As 1	*is to*	4.44	*ſo is*	75.4	*to*	16.97
Unity		*Diviſor*		*Circumf.*		*Side* of the *Square.*

10. The *Circumference* of a *Circle* being given to find the *Area* of that *Circle*. For the Circumference and Area

The RULE. The Rule.

If the *Square* of the *Circumference* of any *Circle* be

Multiplied } by { .079577525 } the *Product* { is the *Area.*
Divided { by { 12.56636217 } the *Quotient* {

Example. Admit the *Circumference* of a *Circle* be 75.4, what's the *Area?* An Example.

Now before we can give a *Solution* to this *Queſtion*, we muſt find the *Circumference* of thoſe *Circles* whoſe *Areas* are *equal in Quantity* to the *Inches*, *Feet*, *Gallons*, *Buſhels*, *Pounds*, *&c.* which will be *Gauge Points* upon the *Sliding Rule*.

The RULE. A further Rule.

If the *Area* of any *Circle* be

Multiplied } by { 12.566368 } the *Product* { is the *Square* of the
Divided { by { .079578 } the *Quotient* { *Circumference*,

whoſe *Square Root* is the *Circumference* ſought.

1. *Ex.*

The Example. 1. *Example.* For *Feet.*

The Operation. The *Common Multiplier* 12.566368
The *Square Inches* in a Foot 144

50265472
50265472
12566368

Square of the *Circum.* 1809.556992(42.538 *Square Root*, or *Gauge Point* for *Feet.*

16

82)209
164

845)4555
4225

8503)33069
25509

85068)756092
680544

75548

After the above Manner I calculated the *Circumferences*, or *Gauge Points* in the following *Table*, which will be of excellent Uſe to find the *Area* or *Solidity* of any of theſe under mentioned: eſpecially in *Timber Meaſure*, when *only* the *Circumference* is given.

A Table of Areas and Gauge Points

A Table of the *Circumference of Circles* anſwering the *Areas* in the *ſecond Column*, which are *Gauge Points* upon the *Sliding Rule*, on the *Line* D.

See an Example of its Uſe in Page 97.

	Areas.	*Circum. or G. Points.*
A *Superficial* Foot — — —	144.	42.538
A *Solid* Foot — — — —	1728.	147.36
Ale Gallon — — — — —	282.	59.529
Wine Gallon — — — —	231.	53.878
Malt Buſhel — — — —	2150.4	164.38
Tallow Pound *Groſs* — —	30.28	19.5066
Ditto *Neat* — — — —	31.4	19.8641
A Pound of *hard* Soap — —	27.14	18.4675
A Pound of *green ſoft* Soap —	25.67	17.9605
A Pound of *white ſoft* Soap —	25.56	17.9219
A Pound of *green or raw* Starch	34.8	20.91

Now

Now for the *Area* in *Feet*, when the *Circumference* is 75.4 by the *Sliding Rule*. An Example of Feet,

	D		C		D		C	
As	42.54	*is to*	1	*ſo is*	75.4	*to*	3.14	
	G. P.		*Unity*		*Circumf.*		*Feet.*	

For *Ale*. An Example of Ale.

	D		C		D		C	
As	59.53	*is to*	1	*ſo is*	75.4	*to*	1.6	*Gallons.*
	G. P.		*Unity*		*Circumf.*			

For *Wine*. Of Wine.

	D		C		D		C	
As	53.88	*is to*	1	*ſo is*	75.4	*to*	1.95	*Gallons.*
	G. P.		*Unity*		*Circumf.*			

For *Malt Buſhels*. Of Malt.

	D		C		D		C	
As	164.38	*is to*	1	*ſo is*	75.4	*to*	.21	*Decim.* Parts of a *Buſhel.*
	G. P.		*Unity*		*Circumf.*			

For a *Pound* of Tallow *Groſs*. Of Tallow.

	D		C		D		C	
As	19.51	*is to*	1	*ſo is*	75.	*to*	1.48	*Pound.*
	G. P.		*Unity*		*Circumf.*			

Note, This *Diviſor* 12.56636217 is not to be found in any of the ſix Properties of a Circle in Pages 54 and 55; but the *Factor* is in the *Second* thereof, Page 54, therefore (as I have before taught) *divide Unity* by the *ſaid Factor* .079577525, and the *Quotient* will be the *Diviſor* 12.56636217. A Note.

Or,

It is grounded upon this univerſal *Theorem*, that when the *Diameter* is 4, the *Circumference* and *Area* are equal, *viz.* 12.566368,

By the *Ten Operations* on *Pages* 54, 55, 56, 57, 58, 59, I have ſhewn how to find any of the Parts in the *Circle* (*Plate* 1. *Fig.* 1.) when the *Diameter* and *Circumference* are given, and to go thro' all the Parts thereof will require *Twenty Operations* more, which I ſhall leave unperformed to try the Learner's Ability; only he is to obſerve,

1. That when the *Diameter* of *one Circle* is 1, and the *Diameter* of *another Circle* is 2, the *Circumference* of the *firſt* is *equal* to the *Area* of the *ſecond*, viz. 3.141592. Some Properties of a Circle.

2. If the *Circumference* be 4,
The *Diameter* and *Area* are *equal* } *viz.* 1.273241 found in Page 47.

3. If the *Diameter* of a *Circle* be 4,
The *Circumference* and *Area* are *equal* } *viz.* 12.566368.

Hence

Hence, becauſe *Circles* are the moſt *capacious* of all other Figures, it will not be unacceptable to the diligent Reader to let him ſee that if he takes the *fourth Part* of a *Circle*, and *ſquares* it, that will not be equal to the *Area* of that *Circle*, altho' the four *Sides taken together* are equal to the *Circumference* of that *Circle*.

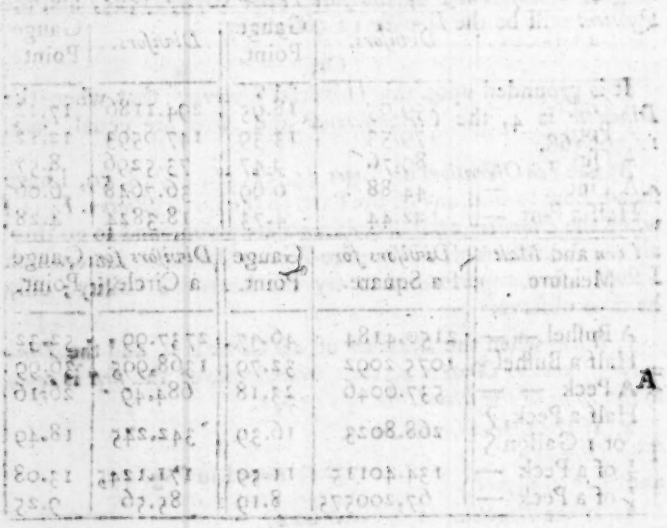
Plate IV. Fig. 1. So in the *Circle* above made uſe of, whoſe *Circumference* is 75.4 its *Area* is 452.4: the *fourth Part* of the *Circumference* is 18.85, which *ſquared* is *only* 355.3225, which is no leſs than 97.0775 *leſs than the Truth*, in that *Circle* whoſe *Diameter* is 24; ſo that the *greater* the *Circle* is the *greater* will the *Error* be.

For further *Proof* of this Matter, and to make it plain to the meaneſt Capacity, if you take a *Pewter Pint Ale* Meaſure, whoſe *Content* is 35.25 *Cubic Inches*, and beat it perfectly into a *Square Form* as ACBD, you will then find it to contain but only 28.902 *Cubic Inches*, that is *leſs than the Truth* by 6.348405425707817 91 The *Area* of the Circle is 8.761585928 8, the *Area* of the *Square* is 6.881332065376624.

Archimedes has demonſtrated that if the *Diameter* of *one Circle* be *doubled* to the *Diameter of another*, the *one Circle* will be *Four-fold* to the *other*. *Whiſton*'s *Euclid*, Page 217.

Why *Keay* is wrong and *Hoppus* right. This ſhews the Reaſon why taking the *fourth Part* of the *Girt* in *Timber Meaſure* is falſe; ſo that it is evident that Mr. *Hoppus* in the *Preface* to his *new* Tables of *Practical Meaſuring*, (Price 2 *s.* 6 *d.*) has very *juſtly* expoſed *Iſaac Keay* and his Followers. See alſo *Hawney*'s Meaſurer, *Page* 249. which approves Mr. *Hoppus*'s Method, and condemns *Keay*'s.

See *Plate* IV. *Fig.* 1. for the *Demonſtration*.



A TABLE of a *Superficial* Foot, of a *Solid* Foot, of the *Ale* and *Wine* Gallon, of the *Malt-Buſhel*, together with the *Diviſors* and *Gauge Points* both for *Squares* and *Circles*.

By C. LEADBETTER.

A TABLE of Gauge Points and Diviſors.

For a SQUARE.	*Superficial* Foot.		*Solid* Foot.	
	Diviſors.	Gauge Point.	*Diviſors.*	Gauge Point.
A Foot — —	144	12	1728	41.57
One Half ——	72	8.48	864	29.4
One Fourth —	36	6.	432	20.7
For a CIRCLE.	*Diviſors.*	Gauge Point.	*Diviſors.*	Gauge Point.
A Foot — —	183.34	13.54	2200.158	46.9
One Half ——	91.67	9.57	1100.079	33.17
One Fourth —	40 885	6.39	550.0395	23.45
For a SQUARE.	Ale Diviſors.	Gauge Point.	Wine Diviſors.	Gauge Point.
A Gallon ——	282	16.79	231	15.19
A Pottle — —	141	11.87	115.5	10.72
A Quart — —	70.5	8.39	57.75	7.59
A Pint — —	35.25	5.93	28.875	5.37
Half a Pint —	17.625	4.19	14.4375	3.79
For a CIRCLE.	*Diviſors.*	Gauge Point.	*Diviſors.*	Gauge Point.
A Gallon ——	359.05	18.95	294.1186	17.14
A Pottle — —	179.53	13.39	147.0593	12.12
A Quart — —	89.76	9.47	73.5296	8.57
A Pint — —	44.88	6.69	36.7648	6.06
Half a Pint —	22.44	4.73	18.3824	4.28
Corn and *Malt* Meaſure.	*Diviſors for* a Square.	Gauge Point.	*Diviſors for* a Circle.	Gauge Point.
A Buſhel — —	2150.4184	46.37	2737.99	52.32
Half a Buſhel -	1075.2092	32.79	1368.995	36.99
A Peck — —	537.6046	23.18	684.49	26.16
Half a Peck, or 1 Gallon	268.8023	16.39	342.245	18.49
$\frac{1}{4}$ of a Peck —	134.40115	11.59	171.1245	13.08
$\frac{1}{8}$ of a Peck —	67.200575	8.19	85.56	9.25

If

Plate I. Fig. 17. If the *Proportion* which the *Diameter* of a *Circle* hath to its *Circumference*, be allowed to be as 7 to 22, then the *Square* made of the *Diameter* of *any Circle*, is in *Proportion* to that *Circle*, as 14 to 11; and therefore every *Circle inscribed* within a Square is $\frac{11}{14}$ thereof.

Demonstration.

See Plate I. Fig. 17. Let the *Circle inscribed* within the *Square* be A, B, C, D, I say the *Area* of that *Circle* is *equal* to $\frac{11}{14}$ of *that Square*.

Suppose the *Diameter* E F be 14, *equal* to the *Side* of the *Square* A B, *&c.* and the *Circumference* 44, how will this answer the *Theorem?*

Operations.

First, As 7 *is to* 22 *so is* 14 *to* 44 the *Circumf.* *Side* A B = 14

Half — 22 *Mult.* 14

Half the Diameter 7 —

56

Area of the *Circle* 154 14

Area of the *Square* 196

Secondly, Say, as 154 *is to* 196, *so is* 11 to 14; consequently the *Proportion* that a *Circle* hath to a *Square* whose *Diameter* and *Sides* are *equal*, is as 11 to 14. For you see, as the *Area* of the *Circle* is to the *Area* of the *Square*, so is 11 to 14.

CHAP. XX.

Shewing how to gauge all Manner of SUPERFICIES *.

See Plate I.

Of the Square. Plate I. Fig. 1. AND first of a SQUARE.

1. *Definition.* A *Geometric Square* is a Figure consisting of *four equal Sides*, and as many *right Angles* †.

The Rule. *The* RULE.

Take the *Side of the Square* in *Inches* and *Decimal Parts* by help of your *four Foot* Rule, and *multiply* it by *itself*; *divide* the

* As *Unity*, or 1, is the *Beginning* of *Numbers*, so a *Point* is the *Beginning* of *Magnitude*, and if a Point be put in Motion, or supposed to move, it will generate, or form a *Line*, and if a *Line* be put in Motion, or supposed to move, it will form a *Surface* or *Superficies*.

† An ANGLE is made by the Meeting of two Lines; and if one Line cut the other by a *Perpendicular*; that is to say, *Square wise*, then 'tis called a *Right Angle*; but if it *lean either way*, it makes *two Angles*, one *acute* or sharp, and the other *obtuse* or blunt. And in the Business of *Gauging*, all *Superficies* or *Areas* are always understood to be *one Inch deep*, otherwise it could not be said (as in the Gauger's Language it is) that the *Area* of such a *Circle*, or of such a *Back*, &c. is so many *Gallons*.

Plate. 1. An Areometer page 203.

Fig. A.

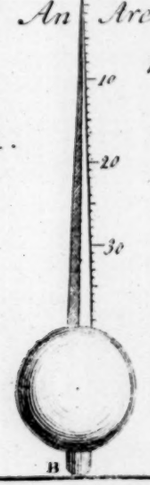


Fig. 1.
A Square equal to a Square inscribid, and an equal Tegg'd Triangle, in a Circle. page. 64.

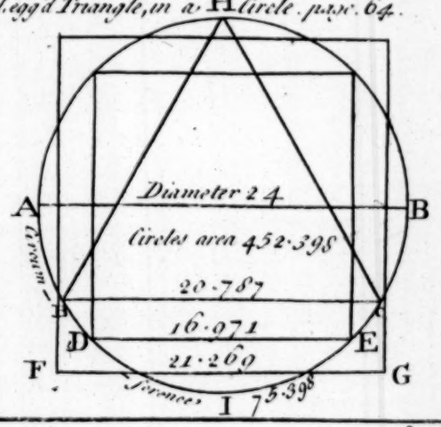


Fig. 2.
An Oblong or Long Square. page. 65.

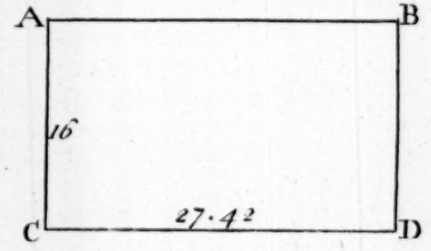
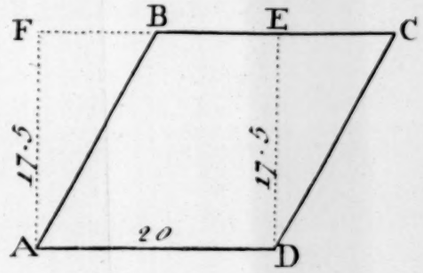


Fig. 3.
A Rhombus. page. 66.



A Rhomboi

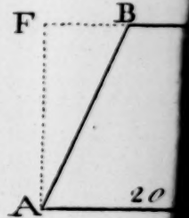
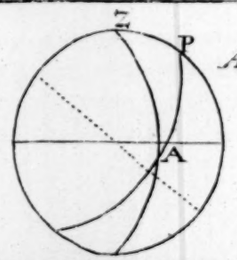


Fig. 16. page. 91



A Spherical Triangle

The Ballance or Scales page 207

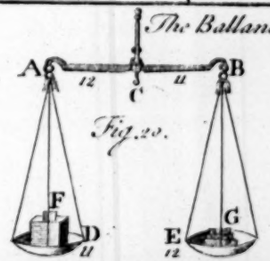


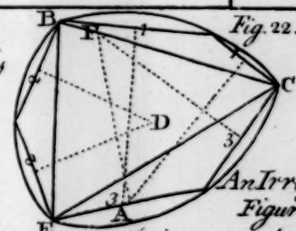
Fig. 20.

Fig. 21. Pag. 87.



An Ellipsis

Fig. 22. Pag. 91.



An Irregular Figure

24

A Gauging Rod, or Cane of three feet, with the Diagonal Lines for

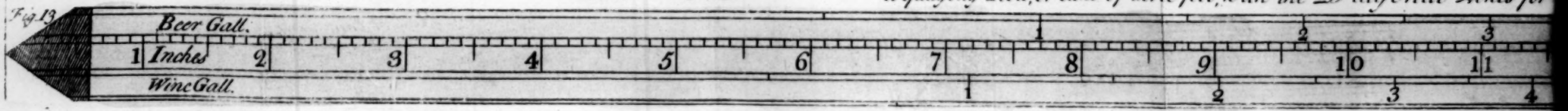


Fig. 2.
An Oblong or Long Square. page 65.

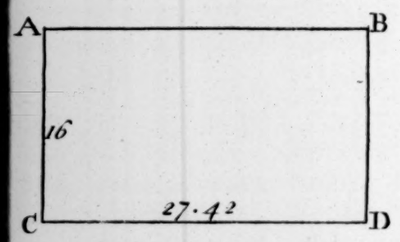


Fig. 3.
A Rhombus. page 66.

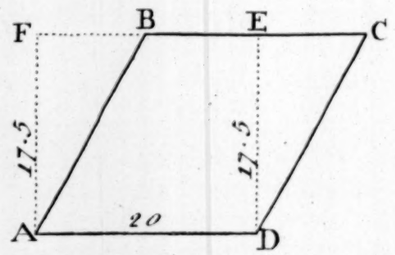


Fig. 4.
A Rhomboides. page 67

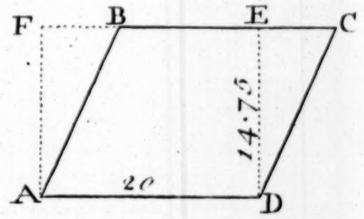


Fig. 5.
A Triangle or three sided Figure. page 68

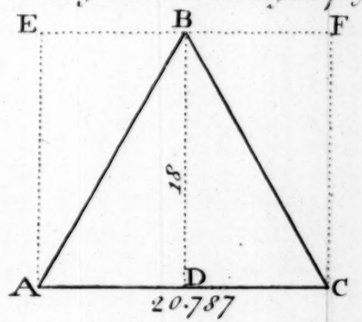
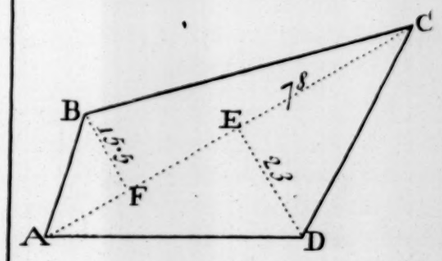


Fig. 6.
A Trapezium. page 69



allance or Scales page 207



Fig. 21. Pag. 87.
An Ellipsis

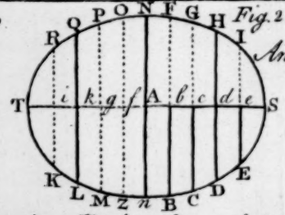
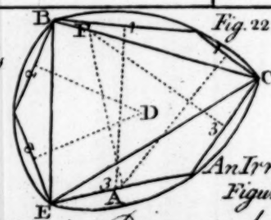
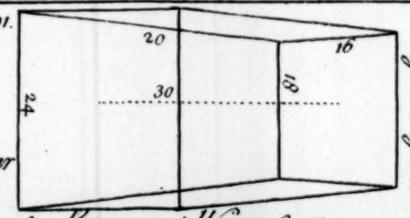


Fig. 22. Pag. 91.



An Irregular Figure



An Irregular Prismoid. Fig. 23. Pag. 116.

A Cask on the Keys with the Callipers

Fig. 18.
Part 2. Chap. XX



A Gauging Rod, or Cane of three feet, with the Diagonal Lines for Beer and Wine Gallons. See it explained on page 35. 36.

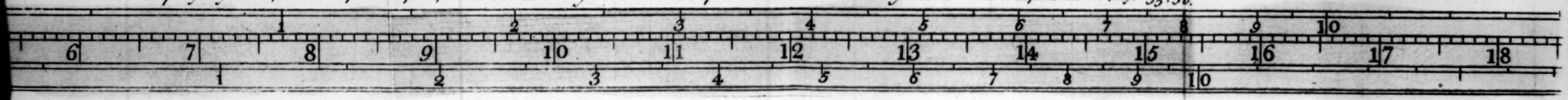


Fig. 7. An Irregular Figure.
Page 70

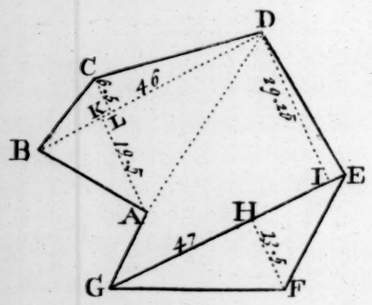


Fig. 8. A Pentagon.
Page 71

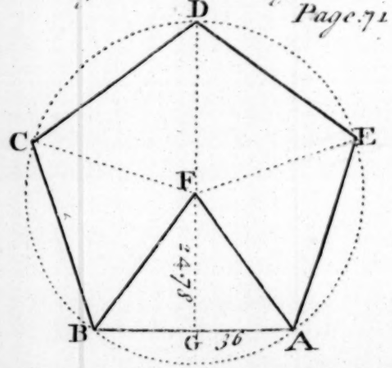


Fig. 9. A Sector of a Circle.
Page 73

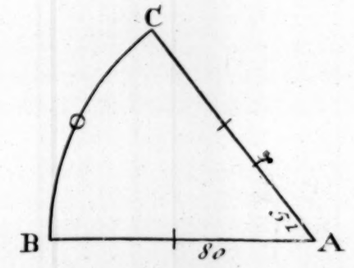


Fig. 10. A Semicircle, or half a Circle.
Page 74

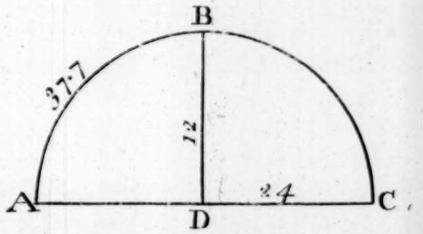


Fig. 11. A Quadrant, or a quart
of a Circle.
Page 76

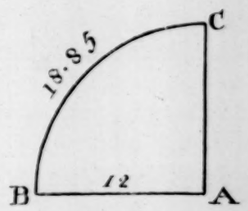


Fig. 19.
page 177

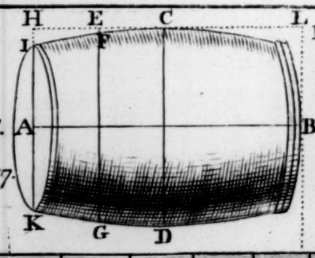
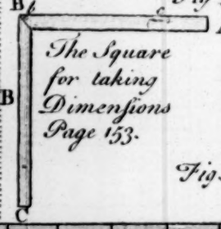


Fig 25



The Square for taking Dimensions Page 153.

Fig. 14. The Diagonal Scale, for making the Line of Numbers. See page 30, 31.

Fig 14

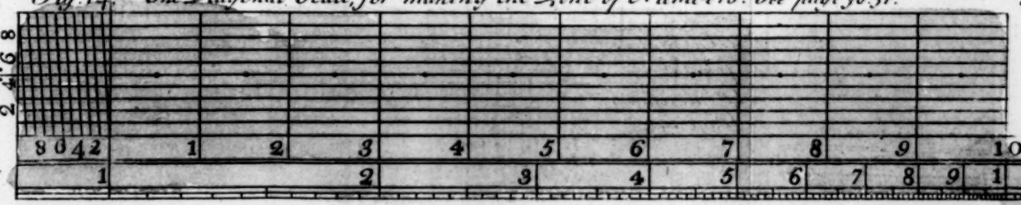


Fig 26. The Square when Shut. See

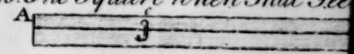


Fig 15

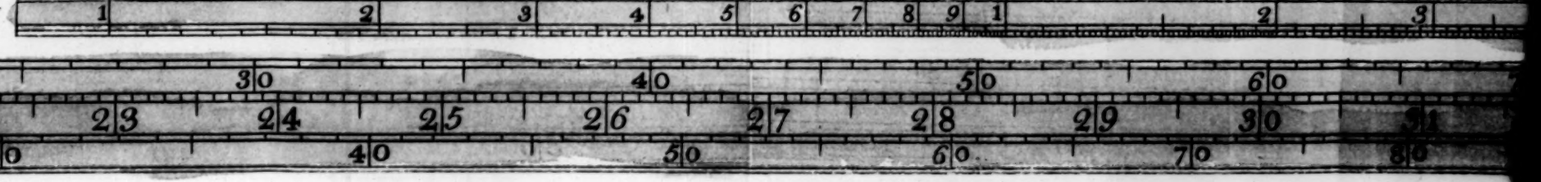


Fig 15. The Line of Numbers, made from the al

Fig. 10. A Semicircle, or half a Circle.
Page. 74

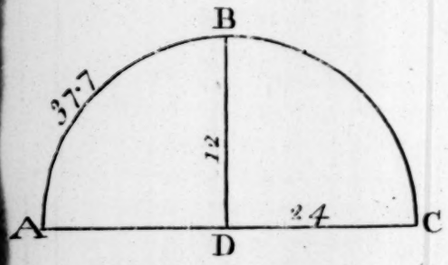


Fig. 11. A Quadrant, or a quarter of a Circle.
Page. 76

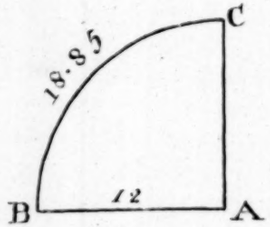


Fig. 12. Concentric, or Parallel Circles. With the Segments EAF & FBE
Page. 77 & 81

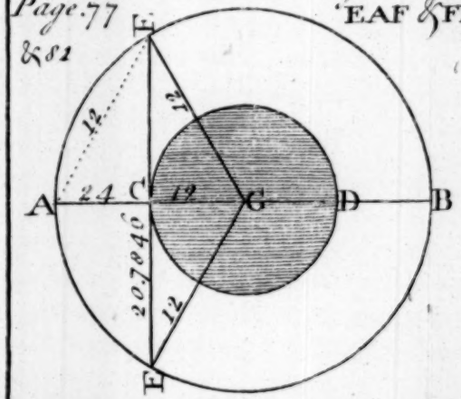
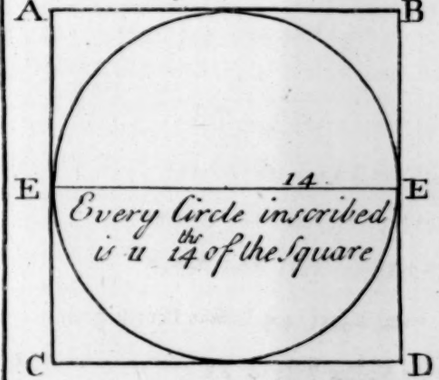


Fig 17
page 64
Plate. 1.

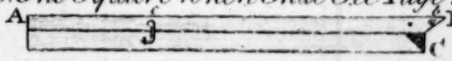


bers. See page 30. 31.

Fig 14



Fig. 26. The Square when Shut See Page 153.



An Irregular Back
Fig. 24. Pag. 136

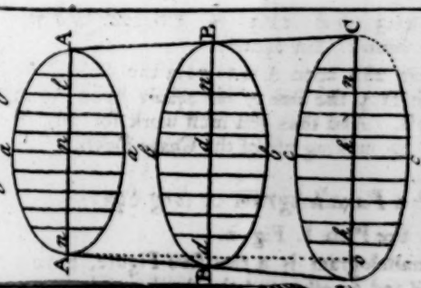
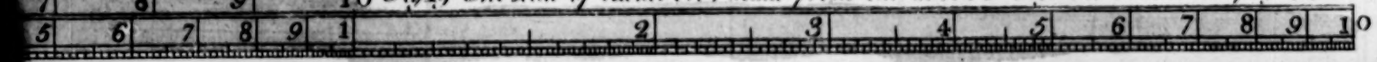


Fig 15. The Line of Numbers, made from the above Diagonal Scale. See page 32



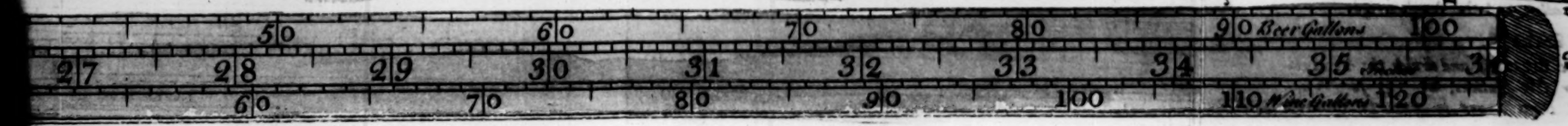


Fig. 13

the *Product* by 144 for *Feet*, by 282 for *Ale Gallons*, by 231 for *Wine* Gallons, and by 2150.4 for *Malt Buſhels*, &c. as in the Table, *Page* 51.

Example. Let F G be 21.269 *Inches*, I demand the *Area*, or *ſuperficial Content* in *Feet*, *Ale* Gallons, *Wine* Gallons, *Malt* Buſhels, and *Tallow* Pounds. An Example.

Operation. The Operation.

F G = 21.269
F G = 21.269

191421
127614
42538
21269
42538

144)452.370361(3.14 *Feet*

282)452.37(1.6 *Ale* Gallons Other Examples.

231)452.37(1.95 *Wine* Gallons

2150.4)452.370(.21 *Malt* Buſhels

30.28)452.370(14.9 *Tallow* Pounds groſs.

By the Sliding Rule for *Ale*. By the Sliding Rule.

A	B	A	B
As 282 *is to*	21.3 *ſo is*	21.3 *to*	1.6 *Ale Gallons.*
Diviſor	*Side Square*	*Side Square.*	

As the *Gauge Point* 282 upon A is to 21.3 the *Side of the Square* upon B, ſo is 21.3 the *Side of the Square* upon A, to 1.6 *Ale Gallons* upon B. And thus you muſt work for any of the other Queſtions, by making uſe of the *Gauge Points*.

2. To gauge a *Parallelogram* or *long Square*.

Of the Parallelogram. Plate I. Fig. 2.

See Plate I. Fig. 2.

Definition. A Parallelogram is a *four ſided* Figure, having its *oppoſite* Sides *equal* and *parallel*, and the Angles *right*.

The RULE. The Rule.

Multiply *the* Length *by the* Breadth, *and divide the* Product *by* 144, *for* Feet, *by* 282 *for* Ale *Gallons*, by 231 *for* Wine *Gallons*, *by* 2150.4 *for* Malt *Buſhels*, *and by* 31.4 *for* Pounds of *Tallow* neat.

Example. In the Figure before us, let the *Side* C D be 27.42 *Inches*, and A C 16, I demand the *Area* in *Feet*, *Ale Gallons*, *Wine Gallons*, *Malt Buſhels*, and in *Tallow* Pounds *neat*. An Example.

The Operation.

Operation.

C D = 27.42
A C = 16.

16452
2742

144)438.72(3.04 *Feet*

Other Examples.

282)438.72(1.55 *Ale Gallons*
231)438.72(1.89 *Wine Gallons*
2150.4)438.72(.204 *Malt Buſhels*
31.4)438.720(13.97 *Tallow* Pounds *neat.*

By the Sliding Rule.

By the *Sliding Rule* for *Feet.*

	A		B		A		B	
As	144	*is to*	27.24	*ſo is*	16	*to*	3.04	*Feet.*
	Diviſor		*Length*		*Breadth*			

By the *Sliding Rule* for *Wine Gallons.*

	A		B		A		B	
As	231	*is to*	27.42	*ſo is*	16	*to*	1.89	
	Gauge Point		*Length*		*Breadth*		*Wine Gallons.*	

That is, ſet 231, the *Gauge Point* for *Wine* in *Square Meaſure*, upon A, to 27.42 upon B, and *againſt* 16 the *Breadth* upon A, is 1.89 Wine Gallons upon B the *Area* ſought*.

Of the Rhombus.

3. *To gauge a* RHOMBUS.

See *Plate* I. *Fig.* 3.

Definition.

Definition. A *Rhombus* has *four equal Sides*, and *four Angles*, two *oppoſite* are *obtuſe*, and the other two *oppoſite* are *acute*; 'tis plain from the Figure that the *oblong* A, D, E, F, is *equal to* the *Rhombus* A, B, C, D.

The Rule.

The RULE.

Multiply A D = F E into A F = D E, *and* divide *the* Product *by* 144, *for* Feet, &c. *as below*; *and the ſeveral* Quotients *are the reſpective* Areas *in thoſe* Quantities *unto which the* Diviſors *belong.*

An Example.

Example. Admit the *Side* of the *Rhombus* A D be = 20, and the *Perpendicular* D E = 17.5 *Inches*, I demand the *Area* in *Feet*, *Ale*, *Wine*, *Malt Buſhels*, and *Pounds* of *Hard Soap*, as below.

Operation.

* *Note*, You may take the *Gauge Points* upon B, if you pleaſe, and you will have the ſame Anſwer.

Operation. The Operation.

A F = 17.5
A D = 20

144)350.00(2.43 *Feet*

282)350.00(1.24 *Ale Gallons* Other Examples.

231)350.00(1.51 *Wine Gallons*

2150.4)350.000(.16 *Malt Buſhels*

27.14)350.00(12.8 *Pounds* of *hard Soap.*

By the *Sliding Rule* for *Wine Gallons.* By the Sliding Rule.

A B A B
As 231 *is to* 20 *ſo is* 17.5 *to* 1.51 *Wine Gallons.*

4. *To gauge a* RHOMBOIDES. Of the Rhomboides.

See *Plate* I. *Fig.* 4.

Definition A *Rhomboides*, hath its oppoſite *Sides* and *Angles equal*, but the *Angles not right*, nor *all the Sides equal.* The *oblong* A, F, E, D, is equal to the *Rhomboides*, A, B, C, D, as is plain from the Figure. Definition.

The RULE. The Rule.

Multiply *the* Side A D *into the* Perpendicular D E, *and* divide *the* Product *as below, you will have the* Area *in each reſpective Quantity.*

Example. Let the *Side* A D be = 20, and the *Perpendicular* D E = 14.75, I demand the *Area* in *Feet*, *Ale*, and *Wine* Gallons, in *Malt* Buſhels, and *Pounds* of *Green Soap.* An Example.

Operation. Operation.

D E = 14.75
A D = 20

144)295.00(2.05 *Feet*

282)295.00(1.04 *Ale* Gallons Other Examples.

231)295.00(1.27 *Wine* Gallons

2150.4)295.0000(.137 *Malt* Buſhels

25.67)295.0000(11.49 *Pounds of Green ſoft Soap.*

By the *Sliding Rule* for *Malt* Buſhels. By the Sliding Rule.

A B A B
As 2150.4 *is to* 20 *ſo is* 14.75 *to* .137 Malt Buſhels.

For Green Soft *Soap.*

B A B A
As 25.67 *is to* 20 *ſo is* 14.75 *to* 11.49 Pounds of Green ſoft Soap.

Of the Triangle.

5. *To gauge a* TRIANGLE.

See *Plate* I. *Fig* 5.

Definition. *Definition.* A Triangle is a Figure of *three Sides* and as *many Angles*; if the *three Sides* be *equal*, then 'tis called an *equilateral Triangle*; if *two* be *equal*, it is called an *Iſoſcelar* Triangle; if *all the Sides* be *unequal*, ſo that it have *no right Angle* in it, 'tis called an *oblique angled* Triangle; they are all meaſured by one and the ſame Rule.

The Rule. *The* RULE.

1. *From* any Angle, *as B, let fall the* Perpendicular * B D *upon the* Baſe A C, *and* multiply half that *by the* Baſe, *and that* Product *ſhall be the* Area *of the* Triangle *in the* ſame *Parts or Meaſure that the* Dimenſions *were taken in:*

Or,

A ſecond Rule. 2. Multiply half *the* Baſe *by the* whole Perpendicular: *This* Product *is* equal *to the* Area.

Or,

A Third Rule. 3. Multiply *the whole* Baſe *by the* whole Perpendicular, *and* half *this* Product *is the* Area *as before.*

Euclid. XLI. 1. The *Reaſon* of the *Rule* is, that every *Triangle* is *half* the *circumſcribing oblong*, or long Square, *&c.* as is plain from the *Figure.*

An Example. *Example.* Let the *Baſe* A C be 20.787 *Inches*, and the *Perpendicular* B D 18; I demand the *Area* of the *Triangle* A, B, C, in *Feet*, *Ale* Gallons, *Wine* Gallons, *Malt* Buſhels, and *Pounds* of *ſoft Soap.*

The Operation.

Operation.

A C = 20.787 } *Inches*
Half of B D = 9 }

144)187.083(1.299 *Feet*

282)187.083(.663 *Ale Gallons*

Other Examples

231)187.083(.809 *Wine Gallons*

2150.4)187.083(.08 *Malt Buſhels*

25.56)187.083(7.3 *Pounds of white ſoft Soap.*

By the Sliding Rule. By the *Sliding Rule* for *white ſoft Soap.*

A B A B

As 25.6 *is to* 20.79 *ſo is* 9 *to* 7.3

Note. *N. B.* The *Area* of a *Triangle* may be found without knowing the *Perpendicular*, by having the *three* Sides given, as in *Page* 26. 6. *To*

* A *Perpendicular* is the *ſhorteſt* Line that can be drawn from the *Angle* B to the *Side* A C.

6. *To gauge a* TRAPEZIUM.

Of the Trapezium.

See *Plate* I. *Fig.* 6.

Definition. A *Trapezium* is any Figure that has *four unequal Sides*, as Fig. 6. in which the Line A C is called the * *Diagonal*, B F and D E are *Perpendiculars*, which in Fact is no more than *two Triangles*, *viz.* A B C, and A D C. Definition.

The RULE.

The Rule.

Take your Dimensions in Inches, *and* multiply half *the* Sum *of the* Perpendiculars, *by their* Base *or* Diagonal A C, *and the* Product *is the* Area *in Inches*; *which* divide *by* 144 *for* Feet, *by* 282 *for* Ale Gallons, *by* 231 *for* Wine, *by* 2150.4 *for* Malt Bushels; *and* by 34.8 *for a* Pound *of* Raw *Starch*.

Example. Let the *Diagonal* A C be 78 *Inches*, D E 23, and B F 15.5; what's the *Area* in *Feet*, *Ale Gallons*, *Wine Gallons*, *Malt Bushels*, and *Pounds* of *Raw Starch*. An Example.

Operation. The Operation.

D E = 23
B F = 15.5

The Sum = 38.5
Half the Sum = 19.25
A C = 78

15400
13475

144)1501.50(10.42 *Feet*
• • • •

282)1501.50(5.32 *Ale Gallons*
• • •

231)1501.50(6.50 *Wine Gallons*
• • •

2150.4)1501.500(.69 *Malt Bushels*
••

34.8)1501.50000(43.146 *Raw Starch*
• • • •

Other Examples

By the *Sliding Rule* for *Ale Gallons*. By the Sliding Rule.

A B A B
As 282 *is to* 78 *so is* 19.25 *to* 5.32 *Ale Gallons*.

For *Starch*.

A B A B
As 34.8 *is to* 19.25 *so is* 78 *to* 43.146 *Pounds of raw Starch*.

* *Diagonal*, a *Greek* Word, from δια, *Dia*, and γωνία, *gonia*, a *Corner*.

Of irregular Figures.

7. *To gauge an* IRREGULAR *Figure.*

See *Plate* I. *Fig.* 7.

Definition. *Definition.* All Figures that have *above four Sides*, and those *unequal*, are called, by Geometricians, *Irregular* POLYGONS.

The Rule. *The* RULE.

Theſe Figures muſt be reduced into Triangles *and* Trapeziums, *and gauged, as has been taught in* thoſe Figures.

So the Figure before us will be reduced into two Trapezias, *by drawing the Line* A D; *Then let the Dimenſions be as in the Figure.*

Firſt, For the *Area* of the *Trapezium* A D E F G

Operation.

Operation		For A B C D.	
D I =	29.25	A K =	12.5
F H =	13.5	C L =	6.5
Sum =	42.75	Sum =	26.0
Half =	21.375	Half =	13
G E =	47.	B D =	46
	149625		78
	85500		52
A D E F G =	1004.625		598
A B C D add	598.		

144)1602.625(11.129 *Feet*

Other Examples

282)1602.625(5683 *Ale* Gallons

231)1602.625(6.937 *Wine* Gallons

2150.4)1602.6250(.745 *Malt* Buſhels

30.28)1602.625(52.9 *Tallow* Pounds *groſs.*

By the Sliding Rule.

By the *Sliding Rule* for Wine.

Here you muſt make two Operations, one for each Trapezium, and adding their Areas together, gives the Content of the whole Figure.

Firſt, for the Trapezium, A D E F G.

A	B	A	B
As 144	*is to* 21.4	*ſo is* 47	*to* 6.16 Feet

Secondly, for A B C D.

A	B	A	B
As 144	*is to* 46	*ſo is* 13	*to* 4.15 Feet.

Area A D E F G, add	6.96 Feet.
The Content of the whole	11.11 Feet.

For

For *Ale*.

B A B A B A B A
As 282 *is to* 47 *ſo is* 21.4 to 3.55 As 282 *is to* 46 *ſo is* 13 *to* 2.13
Add 2.13

Content, or Area 5.68 Ale Gallons.

8. *To gauge* Regular Polygons.

Of regular Polygons.

See *Plate* I. *Fig.* 8.

Definition. All Figures that have *more than four Sides*, and thoſe *equal*, are called *Regular* Polygons: If it has *five equal Sides* 'tis called a *Pentagon*; if it has *ſix equal Sides* 'tis a *Hexagon*; if *ſeven equal Sides* 'tis a *Heptagon*, &c. as you will the better perceive by the following *Table* on *Page* 72: from hence it is plain that they take their *Names* from the *Number of Sides* that bounds them.

The RULE.

The Rule.

Find the Area *of* one *of the* Triangles, *(as has been taught on Page* 68;) *and* multiplying *that* Area *by the* Number *of* Triangles, *gives you the* Area *of the* Polygon*.

Example in a *Pentagon*. Let the Dimenſions be as in the Figure: I demand the *Area* of the *Polygon* in *Feet*, *Ale*, *Wine*, *Malt*, and *Soap*.

An Example.

Operation.

The Operation.

B A = 36
Half of F G = 12.39
B A = 36

7434
3717

446.04
Number of Sides 5

144)2230.20(15.48 *Feet*.

Other Examples.

282)2230.20(7.91 *Ale* Gallons.

231)2230.20(9.65 Wine Gallons.

2150.4)2230.200(1.03 *Malt* Buſhels.

25.67)2230.200(86.87 *Pounds* of *hard* Soap.

* Some rather chuſe to *multiply half* the *Sum* of the *Sides*, by the *neareſt Diſtance* of any *Side* from the *Center*, *(equal to the Perpendicular,)* and *divide*, or *multiply* by the *Diviſors* or *Factors* in the *Table*, Page 51, and you will have the *Area* of the *Polygon*. So B A = 36 × 5 = 180 its ½ = 90 × F G = 24.78 = 2230.20, the *Area* in *Inches*, as above.

By the Sliding Rule.

By the *Sliding Rule* for Feet.

Set 446 the *Area* of the *Triangle* on B, to the *Diviſor* 144 on A, and *againſt* 5. the *Number of Sides* on A, is 15.5 on B the *Area* of the *Pentagon* in *Feet*, *viz.*

A B A B
As 144 *is to* 446 *ſo is* 5 *to* 15.5 *Feet.*

For *Ale.*

A B A B
As 282 *is to* 446 *ſo is* 5 *to* 7.91 *Ale Gallons.*

Or you may ſay:

A B A B
As 282 *is to* 90 *ſo is* 24.78 *to* 7.91 *Ale Gallons.*

Or,

B A B A
As 282 *is to* 24.78 *ſo is* 90 *to* 7.91 *Ale Gallons.*

And now that my Reader may have a View of all the *Regular Polygons* to *twelve Sides*, I have here calculated a *Table*, which is conſtructed thus.

Find the *Center* of a *Circle* that will *circumſcribe* the *Polygon*, then becauſe in *every Circle* there are 360 *Degrees*, *divide* the ſaid *Circumference* by the *Number of Sides of the Polygon*, and the *Quotient* is the *Quantity* of the *Angle* at the *Center*; from which *Center*, let fall a *Perpendicular*, as F G in *Figure* 8. *Plate* I. and there is formed a *right-angled plain Triangle*, as A G F = B G F; then ſuppoſing the *Baſe* B A to be *one Inch*, B G = G A will be *half* an Inch, with the *Angles* G F A = G F B = 36 *Degrees*, and F G A = F G B = 54 *Degrees* given, to find the *Perpendicular* G F, which by *Trigonometry* I find the *Length* of the *Perpendicular* F G to be .688 *decimal Parts* of *an Inch*, the *Area* in *ſquare Inches* 1.72; in *Ale Gallons* .006099; in *Wine Gallons*, .0074455 and in *Malt Buſhels* .0007798, &c.

A TABLE of *Regular* POLYGONS.

The *Names*, the *Sides* being one Inch.	The *Angle* at the *Center*.	The *Perpendicular*.	The *Area* in *Square* Inches.	The *Area* in *Ale* Gallons.	The *Area* in Wine Gallons.	The *Area* in *Malt Buſhels*.
A *Pentagon* has 5 Sides -	72 00	.688	1.72	.006099	.007445	.0007798
An *Hexagon* has 6 Sides -	60 00	.866	2.598	.009212	.011246	.001208
An *Heptagon* has 7 Sides -	51 26	1.038	3.633	.012883	.015727	.001689
An *Octagon* has 8 Sides -	45 00	1.207	4.828	.017120	.02090	.002245
A *Nonagon* has 9 Sides -	40 00	1.374	6.183	.021925	.026766	.002875
A *Decagon* has 10 Sides -	36 00	1.539	7.695	.027287	.033311	.003579
An *Undecagon* has 11 Sides	32 44	1.702	9.361	.033195	.040523	.004353
A *Duodecagon* has 12 Sides	30 00	1.866	11.196	.039702	.048467	.005205

Note, Theſe *Areas* are *common Multipliers.*

The

The *Use* of the preceding *Table*.

Multiply the *Square of the Side* of any *regular* * POLYGON by the common *Multiplier* of any of the Bodies in the *Table*; and the *Product* is the *Area* of that *Body* in *Feet*, *Ale* Gallons, *Wine* Gallons, or *Malt* Bushels respectively. The Use of the Table of Polygons.

Example. Let the *Area* of the *Pentagon* above, be required in *Feet*, *Ale* Gallons, *Wine* Gallons, and in *Malt* Bushels? An Example.

B A squared $= 1296 \times .0119444 = 15.48$ *Feet*.

And $\begin{cases} 1296 \times .006099 = 07.90$ *Ale* Gallons.
$1296 \times .007445 = 9.65$ *Wine* Gallons.
$1296 \times .0007798 = 1.01$ *Malt* Bushels.

9. To gauge a *Sector* of a *Circle*. Of a Sector of a Circle.

See *Plate* I. *Fig.* 9.

Definition. A *Sector* of a *Circle* is a Figure bounded by *two Radius's*, or *Semi-diameters* of the *Circle*, having some Part of the *Periphery*, or *Circumference* for its *Base*. Definition.

The RULE

Multiply *the* Radius *or* Semi-diameter *by* half *the Arch of the* Sector; *or the* whole *Arch-line by* half *the* Leg *or Semi-diameter*; *and* divide *the* Product *by* 144 *for* Feet, *by* 282 *for* Ale *Gallons*, *by* 231 *for* Wine *Gallons*, *and by* 2150.4 *for* Malt *Bushels*, &c. *and you will have the* Area *in each particular Quantity*. The Rule.

How to find the Length *of any* Arch, *or Part of a* Circle, *without measuring of it.*

Double the *Semi-diameter*, and that gives the *Diameter* of the *Circle*, of which the *Arch* B C is a Part; then find the *Circumference* of the *Circle* (as has been taught in *Page* 55.) and also the Quantity of the *Angle* at the *Center* A, as I have taught in my *Mechanick Dialling*, Page 72. Then say, As the *whole* Circumference of the Circle 360 *Degrees*, is to the *whole* Circumference in *Inches*; so is the *Arch* B C in *Degrees*, to the *Arch* B C in *Inches*. How to find the Length of an Arch Line.

Example. Let the *Leg*, or *Semi-diameter* B A = A C be 80 *Inches*, and the *Angle* at A 51 *Degrees*; how many *Inches* is the *Arch* B C? An Example.

Operation.

A	B	A	B
As 1 *is to*	3.14159 *Circumf.*	*So is* 160 *Diam.*	*to* 502.654 *Circumf.*

The Operation.

Then

* *Note*, I have purposely omitted the *Area* in *Feet* in the Table; but if your Curiosity leads you to require the *Area* of any Polygon in Feet, you may find *Factors* for that Purpose, by dividing the Area in Inches by 144; and for the Pentagon, it is .0119444.

Then,

A		B		A		B	
As 360	*is to*	502.654	*ſo is*	51	*to*	71.2	} CB.
Degr.		*Inches.*		*Degr.*		*Inch.*	

Now for the *Area* of the *Sector*.

CB = 71.2
Half BA = 40

144) 2848.00 (19.77 *Feet.*

Other Examples.

282) 2848.000 (10.099 *Ale* Gallons.

231) 2848.000 (12.329 *Wine* Gallons.

2150.4) 2848.0000 (1.324 *Malt* Buſhels.

34.8) 2848.00000 (81.839 *Pounds* Starch.

By the Sliding Rule.

By the *Sliding Rule*.

	A		B		A		B	
As	144	*is*	71.2	*ſo*	40	*to*	19.8	*Feet.*
	282		71.2		40		10.1	*Ale* Gallons.
	231	*to*	71.2	*is*	40		12.3	*Wine* Gallons.
	2150.4		71.2		40		1.32	*Malt* Buſhels.
	34.8		71.2		40		81.839	lb. *green raw* [Starch.
	Diviſors.		*Arch.*		½ *Leg.*		*Area.*	

To gauge a Semi-circle.

10. To gauge a *Semi-Circle*.

See *Plate* I. *Fig.* 10.

Definition. A *Semi-circle* is bounded by the *Diameter* AC, and *half* the *Circumference* ABC.

The Rule.

The RULE.

Multiply half *the* Circumference ABC = 37.7 *by one* Fourth *of the* Diameter, *and the* Product *is the* Area *in* Inches; *which* divide *by* 144, 282, 231, 2150.4, *will give the* Area *in* Feet, Ale *Gallons*, Wine *Gallons*, *and* Malt *Buſhels*.

Or,

Another Rule.

Divide *the* Square of the Diameter *by* double *the* Diviſors *for* Circles; *and the Quotient will give you the* Areas *as before*.

Example by the Pen.

Example. Admit the *Diameter* AC be equal 24 *Inches*, and the *half Circumference* ABC = 37.7; I demand the *Area* of the *Semi-circle* in *Feet*, *Ale*, *Wine*, *Malt*, and *Pounds* of *hard* Soap?

1. Ope-

1. Operation by *ſquare* Inches.

Half the Circumference A C = 37.7
One Fourth of the *Diameter* = 6

144) 226.20 (1.57 *Feet.*

Two ſeveral ways of finding the Area.

2. Operation by *Circular Inches.*

Diameter A C 24 *ſquared* = 576
Diviſor 183.34 *Half* = 288.0000 (1.57 *Feet.*

Feet.

For A L E.

Square Inches.
282) 226.2000 (.8021

Circular Inches.
359.05) 288.00000 (.8021

Ale.

For W I N E.

Square Meaſure.
231) 226.2000 (.9792

Circular Meaſure.
294.118) 288.0000000 (.9792

Wine.

For M A L T by *Square Inches.*

2150.4) 226.20000 (.1052 Malt Buſhels.

Malt ſquare.

By *Circular Inches.*

2738.) 288.0000 (.1052 Malt Buſhels.

Malt round.

For *Hard* S O A P.

Hard Soap.

Thus by *Square* Meaſure:
27.14) 226.2000 (8.33

Or, Thus by *Circular* Meaſure.
34.56) 288.0000 (8.33

Square and Circular.

By the *Sliding Rule.*

By the Sliding Rule.

By *Square* Meaſure.

A B A B
As 144 *is to* 37.7 *ſo is* 6 *to* 1.57 *Feet.*
Diviſor. Arch. ½ *Rad. Area.*

Square.

Or,

By *Circular* Meaſure.

D C D C
As 13.54 *is to* 1 *ſo is* 24 *to* 3.14 Area *whole* Circle.
Gauge Pt. Unity Diam. ½ = 1.57 Area *Semi*-Circle.

Circular.

As

On the Lines A B.

	A		B		A		B	
As	282	is to	37.7	so is	6	to	0.8	*Ale* Gallons.
	231		37.7		6		0.98	*Wine* Gallons.
	2150.4		37.7		6		0.1	*Malt* Bushels.

Or,

Half the *Square* of the Diameter *divided* by the *Circular* Divisors in *Page* 51, will give the same *Area* as by the *other two* Methods above.

Or,

By the *Gauge Points* on the Lines C and D in *Circular* Measure.

On the Lines C D.

	D		C		D		C		*Areas*
As	18.94	is	1	so	24	to	1.6	*Ale* Gallons.	0.8
	17.14		1		24		1.96	*Wine* Gall.	0.98
	52.32	to	1	is	24		.21	*Malt* Bushels.	0.1
	5.88		1		24		16.66	*Hard* Soap.	8.33
	Gauge Pt.		*Unity.*		*Diam.*		*Area of the Circle.*		$\frac{1}{2}$ *a Circle*, &c.

Because the *Diameter* of the *Circle* is taken, you must take the half of those *Areas* for the *Area* of the *Semi-circle*, as you see them stand on the right Hand.

To gauge a Quarter of a Circle.

11. To gauge a *Quarter* of a *Circle.*

See *Plate* I. *Fig.* 11.

Definition.

Definition. A *Quarter* of a Circle is bounded by two *Radius*'s or Legs, meeting in the *Center*, and cutting each other at *right Angles* at A, on which the *Arch* B C is drawn.

The RULE.

The Rule.

Multiply half *the* Arch *by the* Radius, *or* Leg, *or* half the Leg *by the* whole Arch; *either of which gives the* Area *in the* same *Measure the Dimensions are taken in.*

When the Dimensions are taken in Inches, divide *by the* same Divisors *as in the* Sector *and* Semi-circle, *and you will have the* Area *in* Feet, Ale, Wine, Malt, *&c.*

Example by the Pen.

Example. Admit the *Leg* A B be 12 *Inches*, and the *Arch* B C 18.85: what is the *Area* in the above-mentioned Example?

Opera-

Operation.

The Operation.

Arch 18.85
Half B A = 6

144) 113.100 (0.785 *Feet.*
...
282) 113.100 (0.401 *Ale* Gallons.
...
231) 113.100 (0.4896 *Wine* Gallons.
...
2150.4) 113.10000 (0.0526 *Malt* Bushels.
....
30.28) 113.10000 (3.735 *Pounds* Tallow groſs.
....

Other Examples.

By the *Sliding Rule.*

By the Sliding Rule.

For *Square* Meaſure.

	A		B		A		B	
As	144.	*is*	18.85	*ſo*	6	*to*	0.785	*Feet.*
	282.		18.85		6		0.401	*Ale* Gallons.
	231.	*to*	18.85	*is*	6		0.49	*Wine* Gallons.
	2150.4		18.85		6		0.053	*Malt* Buſhels.
	30.18		18.85		6		3.74	*Pounds* Tallow
	Diviſors.		*Arch.*		½ *Radius.*		*Area.*	[groſs.

2. By the *Gauge Points* on the Lines C and D.

	D		C		D		C	
As	13.54	*is to*	1	*ſo is*	12	*to*	.78	*Feet.*
	18.94		1		12		.4	*Ale* Gallons.
	17.14		1		12		.49	*Wine* Gallons.
	52.32		1		12		.053	*Malt* Buſhels.
	6.21		1		12		3.74	*Pounds* Tallow
	G. Point.		*Unity.*		*Radius.*		*Area.*	[groſs.

12. To gauge the *Segment of a Circle.*

Of the Segment of a Circle.

See *Plate* I. *Fig.* 12.

Definition. A *Segment* of a *Circle* is a *Part* cut off by a *Right Line* (leſs than the *Diameter*) drawn *within* the *Circle*, as E F; ſo that E A F is a *Segment* leſs than a *Semi-circle*, and F B E is *greater* than a *Semi-circle.*

Definition.

The RULE.

The Rule.

From the Segment *make a* Sector; *then the Reaſon of Meaſuring (or Gauging) the* Segment *is evident: for find the* Area *of the* Sector G E A F, *and alſo the* Area *of the* Triangle G E F; *then* ſubtract *the* Area *of the* Triangle *from the* Area *of the* Sector, *and there will remain the* Area *of the* Segment E A F; *which*

An eaſy way to find the Area of the Segment of a Circle.

which if you ſubtract *from the* Area *of the whole Circle, there will* remain *the* Area *of the* Segment * F B E.

Becauſe in *gauging* a *Sector* of a *Circle*, the *Length* of the *Arch* Line is required to be known, I ſhall here add *another* way than what was ſhewn in *Page* 73, to find the ſame.

The RULE.

The Rule. Multiply *the* Chord *of* half *the* Arch, *viz.* A F *by* 8, *and from the* Product ſubtract *the* Chord *of the* whole Segment, *viz.* E F; divide *the Remainder by* 3, *and the* Quotient *is the* Length *of the* Arch, *very near the Truth.*

An Example. *Example.* Let the *Chord* of *half the Arch* = A F be 12, and the *Chord of the Segment* = E F be 20.7846; I demand the *Length of the Arch* E A F?

The Operation.

Operation.

A F = 12
Common *Multiplier* 8

Product 96.
E F — 20.7846

3) 75.2154 (25.0718 = E A F.

Theſe Things being well underſtood, the Learner may now proceed to find the *Area* of the *Segment* E A F C, according to the *Rule* given above.

A further Operation.

Operation.

E A F = 25.0718		E F 20.7846
½ E G = 6		½ C G = 5
Area of the *Sector* G E A F 150.4308		G E C F 62.3538
Area Triangle *ſubtract* 62.3538		
Area of *Segment* E A F = 88.0770		

A ſecond way of finding the Area of the Segment of a Circle. II. I ſhall here give a *ſecond* Method of finding the *Area* of the *Segment of a Circle*, that ſo the young Student may not have any thing wanting to make him a compleat *Gauger, Surveyor*, &c.

The RULE.

1. Square *the* Semi-diameter *or* Radius *of the* Circle A G, *and* multiply *that* Square *by* 7.

2. Mul-

* Several Authors make uſe of a *Table* of the *Segments* of a *Circle*, but it being not only very common, but alſo troubleſome, for theſe Reaſons it is omitted in this Work.

2. Multiply *the* Radius A G *by* 4, *and that* Product *by* C G, *(that is the Difference between the* verſed Sine * A C *and* Radius A G.)

3. Square *the ſaid* Diſtance C G, *and* multiply *its* Square *by* 3, add *this* Product *to the* Product *got by the* ſecond Rule, *and* ſubtract *that* Sum *from* ſeven times *the* Square *of the* Radius *(or the* Product *got by the* firſt Rule;) *and what remains is your* Dividend.

4. Multiply *the* Radius *of the* Circle *by* 4.5, *and* C G *by* 3, *add theſe* two Products *together, and the* Sum *is the Diviſor.*

5. Divide *the* Dividend *by the* Diviſor, *and the* Quotient; multiply *by* half *the* Chord E F, viz. *by* E C, *this* laſt Product *is the* Area, *or* ſuperficial Content *of the* Segment E A F; *and ſo of any other* Segment *of a* Circle *whatſoever.*

Example. Admit the Radius E G = F G be 12 *Inches*, and the *verſed Sine* A C = 6, the *Difference* between *that* and the *Radius* is C G = 6; I demand the *Area* of the *Segment* in *Inches, Feet, Ale Gallons, Wine Gallons, Malt Buſhels*, and *Pounds of green Starch?* An Example.

Operation. The Operation.

Ale Gallons	12	Ale Gallons 12	CG 6
	12	4	6
	144	48	36
Common Multiplier =	7	6	3
Product =	1008	288 } +	108
Subtract	396	108 }	
Dividend =	612	396	

Common Multiplier	4.5	C G 6
Radius =	12	3
Product	54.0	18
Add	18.	
Diviſor =	72)612.0(8.5	
E C =	10.3923	
The Quotient, is a Multiplier	8.5	
	519615	
	831384	

Area 88.33455 Inches, which differs but .26758 hundredth thouſandth Parts of an Inch, from the *Area* found by the *other Rule* above-mentioned; that is but a little more than a Quarter of an Inch.

(144

* The *verſed Sine* of an Arch is a Segment of the Diameter of a Circle lying between the Foot of the right *Sine*, and the *lower* Extremity of the *Arch*.

Other Examples.

144) 88.33455 (.61343 *Feet.*

282) 88.33455 (.31324 *Ale* Gallons,

231) 88.33455 (.3824 *Wine* Gallons.

2150.4) 88.33455 (.041 *Malt* Bushels.

34.8) 88.33455 (2.5383 *Green raw Starch* Pounds.

On *Hunt*'s Sliding Rule.

Upon *Hunt*'s *Sliding* * *Rule.*

For, as the *Diameter* 24 on A is to 100 on the *Segments*, so is the *versed Sine* A C = 6, to the *Segment* 19.5.

Then, as 1 on B is to the *Area* of the *Circle* 452.4 on A, so is the *Segment* on B to the *Area* of the *Segment* on A = 88. *Inches.*

1. Having the *Diameter* of a *Circle*, and the *Chord* of its *Segment*, to find the *versed Sine* C A.

The Rule.

The RULE.

From the Square of the Radius E G subtract *the* Square *of* E C, *the* Square Root *of the* Remainder *is* C G, *then* A G — C G = A C.

Also,

2. By having the *Chord* E F, and the *versed Sine* C A given, to find the *Diameter* A B.

The Rule.

The RULE.

As A C *is to* E C, *so is* E C *to* C B, *to which* add A C, *the* versed Sine, *the Sum is the* Diameter. Euclid VI. 13.

By the *Sliding Rule.*

A B A B

As 6 *is to* 10.3923 *so is* 10.3923 to 18 + 6 = 24 The Diam.

3. The *Diameter* A B, and the *versed Sine* A C being given, to find the *Chord* E F.

The RULE.

The Rule.

From half the Diameter = A G 12, subtract A C = 6, *there remains* C G = 6: Then *from the* Square of E G subtract *the* Square *of* C G, *the* Square Root *of the* Remainder *is* E C, *which doubled gives* E F, *the* Chord *sought.*

13. To

* Upon *Hunt*'s *Sliding Rule* there is a *Line* of *Segments*, by which the *Area* of the *Segment* of a *Circle* may be found, as he shews in his *Mathematical Companion*, Pages 168 and 169.

13. To gauge the *Space* D B.

The Space D B.

See *Plate* I. *Fig.* 12.

Definition. *Concentric* or *Parallel* Circles, are ſuch as have the *ſame Center*, as the *Circles* A and C have both the *ſame Center* at G. Definition.

The RULE.

From the Area *of the* greater *Circle*, ſubtract *the* Area *of the* leſſer *Circle*; *the* Remainder *will be the* Area *of the* Space D B. The Rule.

Example. Let the *Diameter* A B be 24, C D 12 *Inches*, what's the *Area* of the *Space* D B? An Example.

Operation. The Operation.

Area of the Circle { A B = 452.4 / C D = 113.1 Subtract.

144) 339.300 (2.356 *Feet.*

282) 339.300 (1.203 *Ale* Gallons. Other Examples

231) 339.300 (1.468 *Wine* Gallons.

2150.4) 339.3000 (.157 *Malt* Buſhels.

14. To gauge an *Ellipſis*, or *Oval*.

Of the Ellipſis, or Oval.

See *Plate* II. *Fig.* 1.

Definition. An *Ellipſis* is bounded by a *Curve Line*, in which there is not any part of a *Circle*; 'tis *generated* from the Section of a *Cone*, cut by a *Plane obliquely* thro' the *Axis*, is *longer* one Way than the other; the longeſt *Diameter* A D is called the *Tranſverſe*, and the ſhorteſt G F the *conjugate Diameter*, Plate II. Fig. 8. L F is an *Ellipſis* by cutting the *Cone*. Definition.

It is alſo a *Geometrical Mean* between *two Circles*, whoſe Diameters are *equal* to the *tranſverſe* and *conjugate* Diameters of the *Ellipſis*.

Hence it is eaſy to conceive, that the *Square Root* of the *Rectangle*, or *Product* of the *tranſverſe* and *conjugate Diameters*, will be the *Diameter* of a *Circle*, whoſe *Area* will be equal to the *Area* of the *Ellipſis*.

Note, Every *Ellipſis* has *two Focal Points*, *viz.* I and K, through which the *Latus Rectums* BH and CE conſtantly paſs, cutting the *tranſverſe* Diameter at *Right Angles*; and for their *Length*, it will always hold thus:

AD GF GF BH=CE

As 61 *is to* 47.5 *ſo is* 47.5 *to* 37 *ferè.*

The RULE.

The Rule. *If you* multiply *the* tranſverſe *by the* cojugate *Diameter, and* divide *the* Product *by the* circular Diviſors, *it will give the* Area *in the ſame Meaſure.*

An Example. *Example.* Let the *tranſveſe* Diameter A D be 61 *Inches*, and the *conjugate Diameter* G F 47.5; I demand the *Area* in *Feet*, *Ale* and *Wine* Gallons, in *Malt* Buſhels, and in *Pounds* of *ſoft* Soap?

Operation.

The Operation.

GF = 47.5
AD = 61

475
2850

183.34) 2897.50000 (15.804 *Feet.*

Other Examples

359.05) 2897.5000 (8.07 *Ale* Gallons.

294.118) 2897.50000 (9.85 *Wine* Gallons.

2738.) 2897.50 (1.05 *Malt* Buſhels.

32.54) 2897.5000 (89.04 *White ſoft* Soap.

By the *Sliding Rule.*

By the Sliding Rule.

A		B		A		B
183.34		61		47.5		15.804 *Feet.*
359.05		61		47.5		8.07 *Ale* Gallons.
As 294.118	*is*	61	*ſo*	47.5	*to*	9.85 *Wine* Gallons.
273.8	*to*	61	*is*	47.5		1.05 *Malt* Buſhels.
32.54		61		47.5		89.04 *White ſoft* So.
Gauge Point.		*Tr. Diam.*		*Conj. Diam.*		*Content.*

I hope it will not be deemed Impertinence, if I here take ſome farther Notice of the *Ellipſis*, or *Oval*, ſince all the Books of Gauging, that I have ſeen, are defective in this Reſpect.

To draw an *Oval* or *Ellipſis*. To *deſcribe* an *Oval* or *Ellipſis*, to any *Length* and *Breadth* required.

See *Plate* VI. *Fig.* 1.

Let it be required to *deſcribe* the Oval C D E F, whoſe *longeſt Diameter* ſhall be equal to the given Line A, and the *ſhorteſt* to the given Line B.

Firſt, Draw the Line C D, *equal* in *Length* to A; alſo E F *equal* in *Length* to B, and at *right Angles* with C D. *Secondly*, Take *the Diſtance* C O or O D, and with it from *the Point* E and

and F, deſcribe *the Circle* F *h* E *f* from the *Center* O. *Laſtly*, Strike a *Nail* or *Pin* at *h*, and at *f*, the *Interſections* of thoſe *Arches*, with the Line C D, and put a *String* or *Thread* round them, at ſuch a Length, that *the two Ends* may juſt reach to E or F; hold theſe two Ends tight between your Fingers, with a black Lead Pencil (or any Thing proper to mark with) between them, and thoſe two Ends being carried round, will cauſe the Pencil to deſcribe the *Oval* or *Ellipſis* C E F D.

A ſecond Way to draw an *Oval* or *Ellipſis*.

To *deſcribe* an *Oval* to any *Length* and *Breadth* required another Way.

See *Plate* VI. *Fig.* 2.

Let the *longeſt Diameter* given be the Line A (as under *Fig.* 1.) and the *ſhorteſt* B.

Firſt, Draw the Line A B *equal in Length* to A, and C D *equal* to the Line B, *dividing* A B *equally* at *right Angles* in *a*.

Secondly, Make A ⊙ *equal* to C D; and *dividing* ⊙ B into *three* equal Parts; ſet off *two* of thoſe Parts from *a* to *b*, and from *a* to I; then with *the Diſtance* I *b*, make *two equilateral Triangles* I *d b* and I *e b* whoſe *Angles* are the *Centers*; Then fix *one* Foot or Point of your Compaſſes in the Point *b*, and *the other* Point in B, and deſcribe the *Arch* from *f* to *b*; Then keep your Compaſſes at the ſame Diſtance, and put *one Point* in I, and deſcribe *the Arch i*, A, *g*; Then extend your Compaſſes from the Point *e* to C, and deſcribe the *Arch* from *i* to *f*; and keep your Compaſſes at that Diſtance, and put one Point in *d*, and deſcribe the *Arch h*, D, *g*, will form the *Oval* or *Ellipſis* required.

To find the Center and two Diameters of an *Ellipſis*.

To find the *Center* and the *two Diameters* of an *Oval*.

Plate VI. *Fig.* 3.

Let A B C D be the *Oval* propoſed, whoſe *Center* and *Diameters* are to be found.

Draw at Pleaſure two *parallel Lines* E F G H; *biſect* them in the Points I, K; then draw the Line *a b*, and *biſect* it in W, and upon W, as *a Center*, deſcribe *a Circle* at Pleaſure, as E L H, *cutting* the *Oval* in the Points E L; Draw the right Line E L, *biſect* it in *h*, and through the Points *h* W, draw the *greateſt* Diameter A B, then through the *Center* W, draw the *leaſt* Diameter C D *parallel* to the Line E L, and you have what was required.

Of the Segment or Ellipſis.

15. To gauge the *Segment* of an Ellipsis.

See *Plate* II. *Fig.* 1.

To gauge the Segment of an Ellipſis.

You muſt remember that I have told you before, every *Ellipſis* is a *Geometrical mean Proportional* between the two *Circles* deſcribed on the *tranſverſe* and *conjugate* Diameters: So that (as before has been taught) if you find the *Area* of the *Circle*, whoſe *Diameter* G F=47.5 it will be 1772.05 *Square Inches*:

Alſo the *Area* of the *Circle* * whoſe *Diameter* A D = 61 = to the *tranſverſe Diameter* of the *Ellipſis*, it will be 2920; the *Geometrical Mean* between theſe two *Areas* is 2275, the *Area* of the *Ellipſis* in *Square Inches*.

A *Synopſis* of the Parts of an Ellipſis for gauging its *Segment*.

Here follows a ſhort View of the ſeveral Parts of the *Ellipſis*, neceſſary to be known in the *gauging* of its *Segment*.

A D = 61.
G F = 47.5
G I = A L = 30.5
I L = B q = 19.2 + qC = BC 38.4
A I = 11.3
B H = C E = 37. *ferè*.
L P = L G = 23.75
q L = B I = 18.5
O q = q P = 14.89
S I = I r = 23.7
S r = v t = 47.4

Plate II. Fig. 1. To find the Area of a Segment.

Now let it be required to find the *Area* of the *Segment* B G C = H F E: in order to do which, we muſt have in readineſs the *Latus Rectum*, B H = C E, which by the 14th *Section* hereof, is found to be 37.

And from hence it follows, that *all Segments* of an *Ellipſis* and its *inſcribed Circle*, whoſe *Baſes* are *parallel* to the *tranſverſe Diameter*, and have the *ſame Height*, are in Proportion *one* to *another* as their *Areas* are. That is,

As the *Area* of the *inſcribed Circle* is to the *Area* of the *Ellipſis*, ſo is the *Area* of the *Circle* O P G to the *Area* of the *Ellipſis* B G C. But firſt we muſt have in readineſs *half the Chord* † *of the Arch* O G P, *viz.* O q = P q, which I find in the *Triangle* L P q, for there is given L P = 23.75, being the *Radius of the inſcribed Circle*, and L q = 18.5, to find q P, which by the 47 of the *firſt* Book of *Euclid*, (as I have noted in *Rule* 3. *Page* 25.) I find to be 14.89.

Theſe Things being known, proceed to find the *Area* of the *Circle's Segment* O G P, by the 12th *Section* of this *Chapter*; which I find to be 105.80834. Now ſay, as the *conjugate Diameter* G F is to the *Area* of the *Circle's Segment*, ſo is the *tranſverſe Diameter* A D to the *Area* of the *Ellipſis's* Segment B G C.

See

* *Note.* You need not find the *Areas* of the Circle and Ellipſis; but inſtead thereof, make uſe of the Traverſe and Conjugate Diameters of the Ellipſis.

† *Chord*, in Geometry, is a *Right* Line connecting the *Extremities* of any *Arch* of a Circle, and reſembles the String of a Bow, as in *Plate* II. *Fig.* 1. S r, is the *Chord* of the *Arch* S A r; and t v is the *Chord* of the *Arch* t D v; O P is the *Chord* of the *Arch* O G P. And w x is the *Chord* of the *Arch* w F x, *&c.*

See the Work.

LP 23.75	LP 23.75	qL = 18.5	Operation.
23.75	* 4	18.5	
11875	95.00	925	
16625	qL = 18.5	1480	
7125	475	185	
4750	760	342.25	
564.0625	95	† 3	
Com. Multiplier 7	1757.5 } *add.*	1026.75	
3948.4375	1026.75 }		
Subtract 2784.25	2784.25	LP 23.75	
Divid. = 1164.1875		4.5	
qL = 18.5		11875	
Com. Multipliers 3		9500	
55.5		106.875	
		55.5	
		Divisor 162.375	

162.375) 1164.1875 (7.169 × qP = 14.89 = 105.80834

Now say:

	GF		Seg.OGP		AD		Seg.BGC
As	47.5	*is to*	105.80834	*so is*	61	*to*	135.8802
							2
Which *doubled* is the Sum of the *Segment* BGC and HFE							271.7604

2. For the *Area* of the *Segment* HAB=CDE.

Of the Area of the Segment.

See *Plate* II. *Fig.* 1.

Before we can proceed in this, we must find the *Length* of the *Chord of the Arch* S A r = t D v, *viz.* r s = t v. How to proceed.

And because S I = v K is a *mean Proportional* between A I and I D, (as is plain from the *Figure*) I find it to be 23.7. Now observe to work as in the 12th *Section* of this *Chapter*, and find the *Area of the Circle's Segment*, and by that the *Segment of the Ellipsis*, as you may the better perceive by the following Example.

* 4 is the common *Multiplier*.

† 3 is the common *Multiplier*.

Operation.

The Operation.

	A L = 30.5	A L = 30.5	I L = 19.2
	30.5	4	19.2
	1525	122.0	384
	915	I L = 19.2	1728
	930.25	244	192
Square		1098	*ſquar'd* 368.64
Multiplier	7	122	3
	6511.75	2342.4	1105.92
Subtract	3448.32	1105.92 *add.*	
Dividend	3063.43	3448.32	

I L = 19.2		A L = 30.5	
Multiplier	3		45
57.6		1525	
		1220	
		137.25	
		57.6	*add.*
		Diviſor	194.85

194.85) 3063.430 (15.72 x 23.7 = S I = 372.564 = S A r.

Now ſay:

AD	Seg. SAr	GF	Seg. HAB
As 61 *is to*	372.564 *ſo is*	47.5 *to*	290.113
Tran. Diam.	*Area Circ.*	*Conj. Diam.*	*multiply* 2

Which *doubled* is the Sum of the *Segment* S A r and v D t = 580.2226
Seg. B G C and H F E = 271.7604
Area of the *Oblong* B C E H = 1420.8
add.

Sum are the *ſquare Inches* in the *Ellipſis* = 2272.7830 *Area.*

A Proof of the gauging the Ellipſis and its Segments.

Now if theſe *ſquare Inches* be *divided* by the *ſquare Diviſors* for *Feet, Ale, Wine, Malt Buſhels,* &c. we ſhall have the *Area* of the *Ellipſis* in thoſe Meaſures, as was found in *Page* 82, when we gauged the *Ellipſis*; which is a *Proof* of all the Operations concerning the *Ellipſis* and its *Segments.*

Feet. 144) 2272.783 (15.783 Feet.

Ale. 282) 2272.783 (8.05 Ale Gallons.

231) 2272.783 (9.839 Wine Gallons. Wine.

2150.4) 2272.783 (1.05 Malt Bushels. Malt.

25.56) 2272.783 (88.9 *Green soft* Soap. Soap.

By the *Sliding Rule*. By the Sliding Rule.

A		B		A		B
144		1		2272.783		15.783 *Feet*.
282		1		2272.783		8.09 *Ale* Gal.
As 231	*is*	1	*so is*	2272.783	*to*	9.89 *W*. Gal.
2150.4	*to*	1		2272.783		1.05 *M*. Bush.
25.56		1		2272.783		88.9 *Green soft*
Divisor		*Unity*.		*Inches*.		*Content* [Soap.

☞ The *Area* of all ELLIPTICAL Figures may also be found by the following THEOREMS.

See *Plate* I. *Fig*. 21.

THEOREM 1. As the *Rectangle* of any *two Abscissæ* is to the *Square* of *half* the *Ordinate*, which *divides* them; so is the *Rectangle* of any other *two Abscissæ*, to the *Square* of *half* that *Ordinate* which *divides* them.

That is, As $Tg \times Sg$: the Square of PM :: $Td \times Sd$: the Square of DH.

THEOREM 2. As the *Transverse Diameter* is to the *Conjugate*, so is the *Conjugate* to the *Latus Rectum*.

That is, as TS : N*n* :: N*n* : HD = QL

THEOREM 3. As the *Transverse Diameter* is to the *Latus Rectum*, so is the *Rectangle* of any *two Abscissæ* to the *Square* of its *Semi-Ordinate*.

That is, as TS : HD :: $Tb \times Sb$: the *Square* of B*b*. By this Theorem the *Lengths* of *any Number* of *equidistant Ordinates*, rightly applied to the *Conjugate Diameter*, which shall constitute any *Elliptical Curve*, may be readily found.

THEOREM 4. As *one Fourth* of the *Area* of any *Regular Ellipsis* is to the *Sum of any Number* of *equidistant Ordinates*, rightly applied in that *Ellipsis*, *multiplied* into their *Abscissæ*; so is *Unity*, or 1, to the *Sum* of *its like Number* of *equidistant Ordinates* rightly applied, *multiplied* into their *Abscissæ*.—And because 3.42266 is the *Sum* of *three Ordinates* rightly applied, *multiplied* into the *Abscissæ* of any *Curve*, whose *Area is one Inch*; it is therefore a *general Divisor* for *three Ordinates* rightly applied, and at *equal Intervals* multiplied into the *Abscissæ* of any *Curve* whose *Area is greater than one Inch*. *Also* 4.45086 is the *general Divisor* for 4 *Ordinates*; 5.47021, for 5 *Ordinates*; 6.48455, for 6 *Ordinates*; 7.49573 for 7 *Ordinates*; 8.50476, for 8 *Ordinates*; 9.51224, for 9 *Ordinates*; and 10.51858, for 10 *Ordinates* rightly applied in the same Manner. [*Plate* I. *Fig*. 21.]

Example. Let TNSB represent an *Ellipsis*, whose *Transverse Diameter* TS is 40 Inches, and *Conjugate* N*n* 24, and the Dimensions are *five Ordinates* taken at *equal Intervals*, and consequently their *common Distance* will be *four Inches*; what is the *Area* thereof in *Beer* and *Wine Gallons*, supposing their *Lengths* as follows.

1E = 14.4, HD = 19.2, GC = 21.9963, FB = 23.515, N*n* = 24. And on the other Side of the Figure N*n* = 24, OZ = 23.515, PM = 21.99663, QL = 19.2, RK = 14.4.

The Sum of all these Ordinates is 206.2226, which multiplied by AS = AT = 20, gives 4124.4520, and this being divided by 5.47021 (the Divisor for 5 Ordinates) quotes 753.984, the Area in Square Inches; which divided by 282, or 231, gives 2.673 *Beer Gallons*, or 3.264 *Wine Gallons*.

Of a Parabola.

16. To gauge a PARABOLA.

See *Plate* II. *Fig.* 2.

Definition.

Definition. A *Parabola* is one of the *Conic Sections* generated by cutting the *Cone* with a *plane Parallel* to the *Side thereof*. Thus, (*Plate* II. *Fig.* 8.) if the *Cone* be cut by the *right Line* G H *parallel* to the *Side* A B, that *Section* will be a *Parabola*, as is repreſented by *Fig.* 2. *Plate* II. And every *Parabola* is $\frac{2}{3}$ of its *circumſcribing Parallelogram*; *i. e.* A B C is $\frac{2}{3}$ of A E F C; and the *Triangle* A B C is $\frac{3}{4}$ of the *Parabola*, which thing may be eaſily proved, if we conſider that A E and C F are *each* equal to B D; and that the *Square* of B C is *equal* to the *Sum* of the *Squares* of B D and D C. *Q. E. D.*

The RULE.

The Rule.

Take your Dimenſions in *Inches* and *Decimal Parts*; and *multiply* the *Baſe* A C by the *Perpendicular* B D, and *divide* the *Product* by 216 for *Feet*, by 423 for *Ale Gallons*, by 346.5 for *Wine*, by 3225.6 for *Malt Buſhels*, and by 45.42 for *Tallow Pounds*, &c. the ſeveral *Quotients* will be the *Areas* of the *Parabola* in every reſpective Meaſure.

How to find the Diviſors.

How to find the *Diviſors* for a *Parabola*.

But *firſt*, I ſhall ſhew how the above *Diviſors* are found.

Proportion	*Diviſors.*		*Content.*
As 2 *is to*	144.		216. *Feet.*
	282.		423. *Ale* Gallons.
3, *ſo is*	231.	*to*	346.5 *Wine* Gallons.
	2150.4		3225.6 *Malt* Buſhels.
	30.28		45.42 *Tallow* Pounds *groſs*.

An Example.

Example. Admit the *Baſe* of the *Parabola* A C be 40 *Inches*, and the *Perpendicular* or *Axis* B D 30 *Inches*; what's the *Area* of the *Parabola* in the Meaſures above-mentioned?

The Operation.

Operation.

A C = 40 *Baſe.*
B D = 30 *Axis.*

Feet. 216) 1200.00 (5.55 *Feet.*

Ale. 423) 1200.00 (2.84 *Ale* Gallons.

Wine. 346.5) 1200.000 (3.46 *Wine* Gallons.

Malt Buſhels. 3225.6) 1200.000 (.37 *Malt* Buſhels.

Tallow. 45.42) 1200.000 (26.4 *Tallow* Pounds *groſs*.

By

By the *Sliding Rule* on A and B.

By the Sliding Rule.

	A		B		A		B	
As	216.	*is*	40	*ſo*	30	*to*	5.55 *Feet.*	
	432.		40		30		2.84 *Ale* Gallons.	
	346.5		40	*is*	30		3.46 *Wine* Gallons.	
	3225.6	*to*	40		30		.37 *Malt* Buſhels.	
	45.42		40		30		26.4 *Tallow* lb. *groſs.*	
	Gauge Point.		*Baſe.*		*Height.*		*Content.*	

Note, That the 40 in the *Proportion* above is the Quantity of the *Baſe* of the *Parabola*, and the 30 is the *Axis* thereof.

17. Of an HYPERBOLA*.

Of an Hyperbola.

See *Plate* II. *Fig.* 8. and *Plate* III. *Fig.* 4.

Definition. An *Hyperbola* is the fifth *Section* of a *Cone* cut by a *Plane parallel to its Axis*, and continued till it *meet* the *other Side* of the *Cone* beyond the *Vertex*, which is repreſented by N. Definition.

Of the Proportions.

As NK × DK	AK *q*	*ſo*	Na × Da	*to*	g a *q*	
is to	AK *q*		Nb × Db		h b *q*	
	AK *q*		Nc × Dc		i c *q*	
	AK *q*	*is*	Nd × Dd		k d *q*	
	AK *q*		Ne × De		l e *q*	
	AK *q*		Nf × Df		m f *q*	

The *Square Root* of which, are the *Diſtances* g a, h b, *&c.* in the ſame Parts, as A B is 60.

And thus finding as many *Ordinates* as you pleaſe, or as you ſee neceſſary, the Points *g*, *h*, *i*, *k*, *l*, *m*, *n*, *o*, *p*, *q*, *r*, *s*, will be in the *Hyperbola*.

Of the Area.

Now the next Thing in order, is to find the *Area* of the *Hyperbola*; but becauſe that cannot be perfectly performed by any certain or ſettled *Theorems*, as theſe of the *Circle*, *Ellipſis*, and *Parabola* have been; I ſhall therefore omit it 'till ſuch time as the *ſquaring* of the *Hyperbola* is better aſcertained.

18. To gauge a CYCLOID or TROCHOID.

Of a Cycloid.

See *Plate* II. *Fig.* 3.

Definition. The *Curve* of this Figure is called by Mathematicians a *Tranſcendant Curve*, or a *Line* of *infinite Order*. And may beſt be conceived to be generated by a *Nail* in a *Coach-Wheel*; for in every *Revolution* of the *Wheel*, this *Curve* is deſcribed: And the whole *Cycloidal Curve Line* is equal to four *Diameters* of the generating *Circle*; and the Area of the *Cycloidal* Definition.

* In the *Hyperbola*, (*Plate* II. *Fig.* 8.) if K I be continued to the *Vertex* of the *Cone* at M, it will make K M = 96, and if we continue it till it meet with the *other Side* of the *Cone* A B (which I here note with N) then will N K be *equal* to 150.

dal Space is equal to three times that *Circle*. There are many curious *philoſophical* Experiments depending upon this *Curve*; but they being foreign to the preſent Work, are here omitted.

To delineate a CYCLOID.

To delineate a Cycloid.

Make the *Diameter* of the *Circle* B D of what *Quantity* you pleaſe, as ſuppoſe 60; then will the *Circumference* be 188.4954 of the ſame Parts; and the *Semi-circumference* 94.2477; *divide* the *one half* of the *Circle* into any Number of *equal Parts*, (the more the better) ſuppoſe 12, in the Points F, G, H, I, K, L, M, N, O, P, and *divide* the *half Baſe* A B into the like Number of *equal Parts*; through the *equal Points* in the *Arch* draw Lines *parallel* to A C, and lay B P from E to *k*, B O from F to *i* both ways, *&c.* So will *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, *k*, be all in the *Cycloid*.

The RULE.

The Rule.

Find the Area *of the* generating Circle, *and* multiply *it by* 3, *this gives the* Area *of the* Cycloidal Curve *in* Inches; *which* dividing *by the* proper Diviſors, *or* multiplying *by the* proper Factors, *will give the* Area in Feet, Ale, Wine, Malt, *&c.*

An Example.

Example. Let the *Diameter* of the *generating Circle* be 60 *Inches:* What's the *Area* of the *Cycloidal* Space?

Operation.

The Operation.

Diameter	60
Circumſer.	188.4954
Half Circ.	94.2477
Half Diameter	30
Area	2827.4310
Multiply always by	3

Feet. 144) 8482.293 (58.904 *Feet.*

Ale. 282) 8482.293 (30.078 *Ale* Gallons.

Wine. 231) 8482.293 (36.717 *Wine* Gallons.

Malt. 2150.4) 8482.29300 (3.9444 *Malt* Buſhels.

Starch. 34.8) 8482.29300 (243.744 *Raw* Starch.

By

By the *Sliding Rule*.

By the Sliding Rule.

D		C		D		C
13.54		1		60		19.635 x 3 = 58.905 *Feet*.
18.94		1		60		10.026 x 3 = 30.078 *Ale* Gallons.
As 17.14	*is to*	1	*ſo is*	60	*to*	12.239 x 3 = 36.717 *Wine* Gallons.
52.32		1		60		1.315 x 3 = 3.944 *Malt* Buſhels.
6.66		1		60		81.25 x 3 = 243.75 lb. of *green* Starch.
Gauge Point.		*Unity.*		*Diam.*		*Content.*

19. To gauge a SPHERICAL TRIANGLE.

See *Plate* I. *Fig.* 16.

A Spherical Triangle.

Definition. A *Spherical Triangle* is that which is deſcribed on the Surface of a *Globe*, and is bounded by the *Arcs* of *three* great *Circles* of the *Sphere*. I well know this is foreign to the preſent Work; yet not doubting but that it may fall into the Hands of ſome, who are *Aſtronomically* inclined, it has gained a Place here.

A curious Problem not uſeful in gauging.

The RULE.

From the Sum *of the* three Angles, ſubtract *a* Semi-circle, *or* 180 Degrees, *and* multiply *the* Remainder *by* the ſuperficial Content *of the* Sphere *or* Globe: Divide *the* Product *by* 720, *the* Quotient *is the* Area *of the* Triangle.

The Rule for gauging a Spherical Triangle.

Example. The *Angle* P 135, Z 45, A 32, their *Sum* 212 — 180 = 32, and ſuppoſe the *Diameter* of a Globe 60 *Inches*, its *Circumference* 188.9724, the *ſuperficial Content* 11309.724 x 32, and *divided* by 720 = 502,654 *ſquare Inches*, which you may bring into *Feet*, &c. as has been taught in *Page* 52.

An Example.

20. To gauge IRREGULAR *Figures*.

See *Plate* I. *Fig.* 22.

It often happens that the Gauger meets with Figures whoſe Content cannot be found by any of the *Rules* already laid down; in ſuch Caſes the following Method muſt be uſed.

Let *Fig.* 22. *Plate* I. repreſent an *irregular Figure* whoſe *Area* is required. *Firſt*, in ſome Part of its *Curvature*, which appears *circular*, I draw the *two* Lines marked 1, and raiſing *Perpendiculars* from the *Middle* of theſe *two* Lines, I find them *meet* at A; therefore on A, as *a Center*, I try how far that *Segment* of a Circle reaches, and find it to reach from B to C. *Secondly*, by means of the Lines marked 2, I find D, the *Center* of the *Segment* B E; and *Thirdly*, by means of the Lines marked 3, I find the *Center* of the *Segment* E C. Thus is the Figure *divided* into THREE *circular Segments*, and ONE *Triangle*, which may be gauged by the Methods already delivered in this Book: And the *Areas* of thoſe *three Segments*, and that of *the Triangle* ADDED together, will give the true *Content* of *the whole* Figure.

Of irregular Figures.

CHAP.

CHAP. XXI.

Of gauging Solids.

Shewing how to gauge all Sorts of SOLIDS.

A Solid, what?

AS *Superficies* are comprehended under *Length* and *Breadth*; ſo are *Solids*, under *Length*, *Breadth*, and *Depth*.

Of the Cube.

1. To gauge a CUBE.

See *Plate* II. *Fig.* 4.

Definition.

Definition. A *Cube* (or Die) is a *Solid*, having *ſix equal Sides*.

The RULE.

The Rule for gauging a Cube.

Take your Dimenſions *in* Inches, *and* multiply *the* Length, Breadth, *and* Depth *one* into another; *this will give you the* Solidity *in* cubic Inches; *which* multiply, *or* divide *by the proper* ſquare Factors *or* Diviſors *in* Page 51, *and it will give you the* Content *in* Feet, Ale, Wine, Malt, *&c. reſpectively.*

An Example.

Example. Let the *Side* of the *Cube* be 30 *Inches*; I demand the *Content* in *Feet*, *Ale Gallons*, *Wine Gallons*, *Malt Buſhels*, and in *Tallow Pounds groſs*, &c.

Operation.

The Operation.

A B 30
B C 30

Area = 900
C D = 30

Feet. 1728) 27000.00 (15.62 *Feet.*

Ale. 282) 27000.00 (95.74 *Ale* Gallons.

Wine. 231) 27000.00 (116.88 *Wine Gallons.*

Malt. 2150.4) 27000.000 (12.55 *Malt* Buſhels.

Tallow groſs. 30.28) 27000.0000 (891.67 *Pounds of* Tallow *groſs.*

Tallow neat. 31.4) 27000.000 (859.87 *Pounds of* Tallow *neat.*

Hard Soap. 27.14) 27000.0000 (994.84 *Pounds of hard* Soap.

25.67)

25.67) 27000.0000 (1051.81 *Pounds of green ſoft* Soap. — Green ſoft Soap.

25.56) 27000.0000 (1056.33 *Pounds of white ſoft* Soap. — White ſoft Soap.

34.8) 27000.0000 (775.862 *Pounds of green or raw* Starch. — Green Starch.

By the *Sliding Rule* on C and D. — By the Sliding Rule.

	D		C		D		C	
	41.6		30		30		15.62	*Feet.*
	16.79		30		30		95.74	*Ale* Gallons.
	15.19		30		30		116.88	Wine *Gallons.*
	46.36		30		30		12.55	Malt *Buſhels.*
As	5.5	*is*	30	*ſo*	30	*to*	891.67	Tallow *Pounds groſs.*
	5.6	*to*	30	*is*	30		859.87	*Pounds of* Tallow *neat.*
	5.2		30		30		994.84	*Pounds of hard* Soap.
	5.06		30		30		1051.81	*Pounds of green ſoft* Soap.
	5.05		30		30		1056.33	*Pounds of white ſoft* Soap.
	5.9		30		30		775.862	*Pounds of green or raw* Starch.
	Gauge Point		*Side.*		*Side.*		*Content.*	

Note. The *firſt Terms* under D, are the *Gauge Points* for *Squares*, taken out of the Table on *Page* 51, the *ſecond* and *third Terms* are the *Dimenſions* of the *Cube.* — A Note.

2. *To gauge a* PARALLELOPIPEDON. — Of the Parallelopipedon.

See *Plate* II. *Fig.* 5.

Definition. A *Parallelopipedon* is a *ſolid* Figure contained under *ſix Parallelograms*, the *oppoſite Sides* of which are *parallel* and *equal.* — A Parallelopipedon what.

The RULE.

Multiply *the* Length, Breadth, *and* Depth into one another, *(as before in the* Cube) *and the* Product *is the* Solidity *in* Inches; *which* divide *by the* proper Diviſors *you would have its* Content *in, and you will have your Deſire.* — The Rule for gauging a Parallelopipedon.

Example. Let the *Length* A B be = 81 *Inches*, the *Breadth* A G = 25, and the *Depth* G F = 26; What's the *Content* in *Feet, Ale, Wine, Malt,* and *Tallow Pounds neat, &c.*? — An Example.

Ope-

The Operation.

Operation.

A B = 81
A G = 25

405
162

Area = 2025
G F = 26

12150
4050

Feet. 1728) 52650.00 (30.46 *Feet.*

Ale. 282) 52650.0 (186.7 Ale *Gallons.*

Wine. 231) 52650.00 (227.92 Wine *Gallons.*

Malt. 2150.4) 52650.000 (24.48 Malt *Buſhels.*

Tallow neat. 31.4) 52650.000 (1676.75 *Pounds of* Tallow *neat.*

Tallow groſs. 30.28) 52650.0000 (1738.77 *Pounds of* Tallow *groſs.*

Hard Soap. 27.14) 52650.0000 (1939.94 *Pounds of hard* Soap.

Green ſoft Soap. 25.67) 52650.0000 (2051.03 *Pounds of green ſoft* Soap.

White ſoft Soap. 25.56) 52650.0000 (2059.85 *Pounds of white ſoft* Soap.

Starch. 34.8) 52650.00000 (1512.64 *Pounds of green or raw* Starch.

By the Sliding Rule.

By the *Sliding Rule.*

A Geometrical Mean.

Before this can be performed, you muſt find a *Geometrical mean Proportional* between the *Length* A B 81, and the *Breadth* A G 25, as has been taught in *Page* 44. on the *Lines* C and D, thus:

D		C	C		D	
As 81	*is to*	81	*ſo is*	25	*to*	45. the *Mean.*
The Length.				*The Breadth.*		

Now

Now for the Content say:

	D		C		D		C	
	41.6		26		45		30.46	*Feet.*
	16.79		26		45		186.7	Ale *Gallons.*
	15.19		26		45		227.9	Wine *Gallons.*
	46.37		26		45		24.48	Malt *Buſhels.*
As	5.6	*is*	26	*ſo*	45	*to*	167.67	Tallow *Pounds neat.*
	5.5	*to*	26	*is*	45		1738.77	*Pounds of* Tallow *groſs.*
	5.2		26		45		1939.94	*Pounds of hard* Soap.
	5.06		26		45		2051.03	*Pounds of green ſoft* Soap.
	5.05		26		45		2059.85	*Pounds of white ſoft* Soap.
	5.9		26		45		1512.64	*Pounds of green or raw* Starch.
	Gauge Point.		*Depth.*		*Mean.*		*Content.*	

3. *To gauge a* Prism*.

Of the Priſm.

See *Plate* II. *Fig.* 6.

Definition. A *Priſm* is a *ſolid* Figure contained under *ſeveral Planes*, whoſe *Baſes* are *regular Polygons*, (moſt commonly *triangular,*) *equal*, *parallel*, and *a-like ſituated:* ſo that when the *Cube* is 1728, the *Priſm* is 748.2456. Definition.

The RULE. The Rule.

Find the Area *of the* triangular End A B D, *(as was taught in* Page 60.) *which multiplied by the* Length D F, *gives you the* Solidity in Inches; *which* reduce *into* Feet, Ale, Wine *and* Malt, *&c.*

Example. Admit A B be 63, C D 14, and D F 80 *Inches*; I demand the *Content* as above-mentioned. An Example.

Operation. Operation.

A B = 63
Half of C D = 7

Area = 441
D F = 80

1728) 35280.00 (20.41 *Feet.* Feet.
• • • •

282) 35280.00 (125.10 Ale *Gallons.* Ale.
• • • • •

231) 35280.00 (152.72 Wine *Gallons.* Wine.
• • • • •

2150.4) 35280.000 (16.406 Malt *Buſhels.* Malt.
• • • •

27.14) 35280.0000 (1299.93 *hard* Soap. Hard Soap.
• • • • • •

30.28

* *Note*, That *Pyramids*, *Priſms*, and *Parallelopipedons* upon the ſame *Baſe* and *Altitude*, are as *one*, *one* and an *half*, *and three*; That is, if the *Pyramid* be 1, the *Priſm* is 1 and an half, and the *Parallelopipedon* is 3.

Tallow groſs. 30.28) 35280.0000 (1165.12 *Pounds of* Tallow *groſs.*

Tallow neat. 31.4) 35280.000 (1123.56 *Pounds of* Tallow *neat.*

Green ſoft Soap. 25.67) 35280.0000 (1374.36 *Pounds of green ſoft* Soap.

White ſoft Soap. 25.56) 35280.0000 (1380.28 *Pounds of white ſoft* Soap.

Green Starch. 34.8) 35280.00000 (1010.9195 *Pounds of green or raw* Starch.

By the Sliding Rule.

On the *Sliding Rule* on the Lines C and D.

You muſt firſt find a *Geometrical mean Proportional* between the *Baſe* A B 63, and ½ the *Perpendicular* C D 7, thus:

D		C	C		D
As 63	*is to*	63	*ſo is* 7	*to*	21 *the mean Proportional.*
Baſe.		*Baſe.*	½ *Perpend.*		

Now ſay for the Content.

D		C	D		C	
41.6		80	21		20.41	*Feet.*
16.79		80	21		125.1	Ale *Gallons.*
15.19		80	21		152.72	Wine *Gallons.*
46.37		80	21		16.406	Malt *Buſhels.*
As 5.2	*is*	80	*ſo* 21	*to*	1299.93	*Hard* Soap.
5.5	*to*	80	*is* 21		1165.12	*Pounds of* Tallow *groſs.*
5.6		80	21		1123.56	*Pounds of* Tallow *neat.*
5.06		80	21		1374.36	*Pounds of green ſoft* Soap.
5.05		80	21		1380.28	*Pounds of white ſoft* Soap.
5.9		80	21		1010.9195	*Pounds of green or raw* Starch.
Gauge Point.		*Depth.*	*Mean.*		*Content.*	

Of the Cylinder.

4. *To gauge a* CYLINDER*.

See *Plate* II. *Fig.* 7.

Definition.

Definition. A *Cylinder* is a Figure like the *Rolling-Stone* uſed in *Gardens*, it is in all *Places* of an *equal Diameter*; and in *Gauging*, all Caſks are *generally* reduced to this *Form*, before their *Contents* are found.

The RULE.

The Rule.

Multiply *the* Square *of the* Diameter *by the* Depth *(or* Length, *which you pleaſe to term it,) and* divide *that* Product *by the* proper Diviſors *for* Circles, *as you have them in the Table on* Page 51; *and the* Quotient *is the* Content.

Or,

Multiply *the* Product *by its* proper Factors, *which gives you the ſame* Content.

Ex-

* A *Cylinder* is a ſolid Body made by the *Rotation* of a *rectangled Parallelogram* round *one* of its *Sides.*

Example. Let the *Diameter* A B be 56.5 *Inches*, and the *Length* 96; What's the *Content* in *Feet*, *Ale*, *Wine*, *Malt*, &c.? An Example.

Operation. The Operation.

AB = 56.5
56.5
2825
3390
2825
3192.25
Length = 96
1915350
2873025

2200.158)306456.00000(139.29 *Feet.* Feet.

359.05)306456.0000(853.52 Ale *Gallons.* Ale.

294.118)306456.00000(1041.94 Wine *Gallons.* Wine.

2738.)306456.00(111.92 Malt *Bushels.* Malt.

32.68)306456.0000(9377.47 *Green Soft* Soap. Green soft Soap.

38.55)306456.0000(7949.57 *Pounds of* Tallow *gross.* Tallow gross.

39.98)306456.0000(7665.23 *Pounds of* Tallow *neat.* Tallow neat.

34.56)306456.0000(8867.36 *Pounds of hard* Soap. Hard Soap.

32.54)306456.0000(9417.82 *Pounds of white soft* Soap. White soft Soap.

44.32)306456.00000(6914.62 *Pounds of green or raw* [Starch. Green Starch.

By the *Sliding Rule* on the *Lines* C and D. By the Sliding Rule.

As the *Gauge Point* on D is to the *Depth* on C, so is the *Diameter* on D to the *Content* on C.

	D		C		D		C
As	46.9	*is*	96	*so*	56.5	*to*	139.29 *Feet.*
	18.94	*to*	96	*is*	56.5		853.52 Ale *Gallons.*
	17.14		96		56.5		1041.94 Wine *Gallons.*
	52.32		96		56.5		111.92 Malt *Bushels.*
	5.7		96		56.5		9377.47 *Green soft* Soap
	Gauge Point.		*Depth.*		*Diam.*		*Content.*

	D		C		D		C	
As	6.2	*is to*	96	*ſo is*	56.5	*to*	7949.57	*Pounds of* Tallow *groſs.*
	6.3		96		56.5		7665.23	*Pounds of* Tallow *neat.*
	5.9		96		56.5		8867.36	*Pounds of hard* Soap.
	5.7		96		56.5		9417.82	*Pounds of white ſoft* Soap.
	6.66		96		56.5		6914.62	*Pounds of green* Starch.
	G. Point.		*Depth.*		*Diameter.*		*Content.*	

Having only the *Circumference* and *Length*, to find the *Contents* of a *Cylinder*.

Note. By help of the *Table* in *Page* 60, the *Content* of the *Cylinder* may be found by having the *Circumference* and *Length* only. As for

An Example.

Example. The *Diameter* of this *Cylinder* being 56.5, the *Circumference* is 177.499835: Then, for the *Solidity* in *Feet* by the *Sliding Rule* on the *Lines* A and B, ſay,

	A		B		A		B
As	147.36	*is to*	177.5	*ſo is*	96 *Length.*	*to*	115.63

An excellent Way to meaſure *round Timber* truly, with *once ſetting* the *Rule*.

Say *again:*

	A		B		A		B	
As	147.36	*is to*	177.5	*ſo is*	115.63	*to*	139.29	*Feet.*

Of the Cone.

5. *To gauge a* CONE*.

See *Plate* II. *Fig.* 8.

Definition.

Definition. A *Cone* is a *ſolid* Figure riſing from a *Circle* by the *Rotation* of a *Triangle* round *one of its Sides*, and *terminates* in a *Point* at the *Top*, called its *Vertex*; a *Cone* is *equal* to *one third* of its *circumſcribing Cylinder*, as is plain from the *Figure*.

The RULE.

A Rule for gauging a *Cone*.

Square *the* Diameter A C, *and* multiply *that by* one third of *the* Altitude B D; divide this laſt Product *by the* proper Diviſors *for* Circles, *or* multiply *it by their* proper Factors, *and it gives the* Content *in* Feet, Ale, *&c.*

Or,

Another *Rule*.

You may multiply *the* Square *of the* Diameter *by the* whole Height, *and* divide *by the* Triple *of the* circular Diviſors, *which gives the ſame* Anſwer.

Plate II. Fig. 8. Example.

Example. Let the *Diameter* of the *Baſe* A C be 56.5 *Inches*, and the *Height* B D 96; I demand the *Content* in *Feet*, *Ale*, *Wine*, *Malt Buſhels*, and *Pounds* of *ſoft Soap*, &c.?

Ope-

* A *Cone* (by Mathematicians) is called a *Pyramid of infinite Sides.* ☞ And the *Surface* of a *Cone* is *equal to a Triangle* whoſe *Height* is the *Side of the Cone*, and the *Baſe* equal to the *Circumference* of the *Baſe* of the *Cone*. Finding the *Area* of this, is only uſeful in *Painters* Work.

Operation.

A C = 56.5
56.5

2825
3390
2825

3192.25

$\frac{1}{3}$ of the Height B D = 32

638450
957675

Operation.

2200.158) 102152.00000 (46.43 *Feet.* — Feet.

359.05) 102152.0000 (284.51 *Ale* Gallons. — Ale.

294.118) 102152.0000 (347.32 *Wine* Gallons. — Wine.

2738.) 102152.00 (37.31 *Malt* Buſhels. — Malt.

32.54) 102152.0000 (3139.28 *white ſoft* Soap. — White ſoft Soap.

38.55) 102152.0000 (2649.85 *Pounds of* Tallow *groſs.* — Tallow groſs.

39.98) 102152.0000 (2555.08 *Pounds of* Tallow *neat.* — Tallow neat.

34.56) 102152.0000 (2955.78 *Pounds of hard* Soap. — Hard Soap.

32.68) 102152.0000 (3125.82 *Pounds of green ſoft* Soap. — Green ſoft Soap.

44.32) 102152.00000 (2304.873 *Pounds of green or raw* Starch. — Green Starch.

By the *Sliding Rule* on the *Lines* C and D.

By the Sliding Rule.

Set the *Gauge Point* on the *Line* D to $\frac{1}{3}$ of the *Altitude* on C, and againſt the *Diameter* on D is the *Content* on C.

	D		C		D		C	
	46.9		32		56.5		46.43	*Feet.*
	18.94		32		56.5		284.51	*Ale* Gallons.
	17.14		32		56.5		347.32	*Wine* Gallons.
	52.32		32		56.5		37.31	*Malt* Buſhels.
As	5.7	is	32	ſo	56.5	to	3139.28	*Pounds of white ſoft* Soap.
	6.2	to	32	is	56.5		2649.85	*Pounds of* Tallow *groſs.*
	6.3		32		56.5		2555.08	*Pounds of* Tallow *neat.*
	5.9		32		56.5		2955.78	*Pounds of hard* Soap.
	5.72		32		56.3		3125.82	*Pounds of green ſoft* Soap.
	6.66		32		56.5		2304.873	*Pounds of green or raw* Starch
	Gauge Pt.		$\frac{1}{3}$ *Height.*		*Diameter.*		*Content.*	

Mark well. In the *Cylinder* and *Cone* I have put the *Dimenſions* the *ſame*; ſo that you ſee the *Cone* holds juſt *one third Part* of the *Cylinder*.

Of the Fruſtum of a Cone.

6. To gauge the *Fruſtum* of a Cone.

See *Plate* II. *Fig.* 8.

Definition.

Definition. A *Fruſtum* is *that Part* of the *Cone towards* the *Baſe* when the *Top* is *cut off*: ſo in the *Figure* before us, if we cut the *Cone* off by the *Line* E F, I ſay the *Part* A E F C is a *Fruſtum*, and E B F remains a *Cone* as before, though of a *ſmaller* Size.

The RULE.

A Rule for gauging the *Fruſtum* of a *Cone*.

To three times *the* Rectangle *of the* two Diameters, *add the* Square of their Difference; multiply *this Sum by the* Depth, *and* divide *by* 1077.15 (*that is* 3 *times* 359.05) *for* Ale, *by* 882.354 *for* Wine, *by* 8214 *for* Malt Buſhels, *and by* 132.96 *for* Pounds of green Starch, *&c.*

Or,

Another Rule.

Find the Area *of both* Ends *in* Inches, *and between them find a* Geometrical Mean: *The* Sum *of* theſe three multiplied *by* $\frac{1}{3}$ *of the* Altitude *of the* Fruſtum *gives the* Content, *which may be* reduced *into* Feet, Gallons, *&c.*

An Example.

Example. Let the *bottom Diameter* be 56.5 *Inches*, and the *Top* 19, and the *Height* 62; I demand the *Content* in *Feet*, *Ale Gallons*, *Wine Gallons*, *Malt Buſhels*, and *Pounds* of raw *Starch*, &c.?

Operation.

The Operation.

A C = 56.5	A C = 56.5	
E F = 19	E F = 19	
5085	*Subtract* 37.5 *Difference.*	
565	37.5 ×	
Rectangle 1073.5	1875	
Multiply by 3	2625	
3220.5	1125	
add 1406.25	1406.25	
4626.75		
Depth 62		
925350		
2776050		

Feet. 6600.474) 286858.50000 (43.46 *Feet.*

Ale. 1077.15) 286858.5000 (266.31 Ale *Gallons.*

Wine. 882.354) 286858.5000 (325.1 Wine *Gallons.*

Malt. 8214) 286858.50 (34.92 *Malt Buſhels.*

132.96)

132.96) 286858.50000 (2157.479 *Green* or *raw Starch*. — Green Starch.

115.65) 286858.5000 (2480.41 *Pounds* of Tallow *groſs*. — Tallow groſs.

119.94) 286858.5000 (2391.68 *Pounds* of Tallow *neat*. — Tallow neat.

103.68) 286858.5000 (2766.76 *Pounds* of *hard* Soap. — Hard Soap.

98.04) 286858.5000 (2925.93 *Pounds* of *green ſoft* Soap. — Green ſoft Soap.

97.62) 286858.5000 (2938.52 *Pounds* of *white ſoft* Soap. — White ſoft Soap.

N. B. If you take the *Square Roots* of the *Diviſors* for *Circles*, they will be *Gauge Points*, by *which*, and the *three Diameters*, you may find *Areas*, then the *Sum* of thoſe *three Areas multiplied* by the *whole Depth*, will produce the true *Content*. For the *Gauge Points*, ſee *Page* 51.

By the *Sliding Rule*. — By the Sliding Rule.

Firſt, According to the Directions given in *Page* 43, find a *mean Diameter* between the *Top* and *Bottom Diameters* on the *Lines* C and D, thus;

D C C D

As 56.5 *is to* 56.5 *ſo is* 19 *to* 32.7 the *mean Diameter*.

Secondly, To theſe *three Diameters* find *Areas* by the *Sliding Rule*, as is taught in *Page* 33. For the *Areas* in *Feet*, the Work will ſtand thus:

D C D C

As 46.9 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { .164 / .485 / 1.45 } *Areas*.

Sum 2.099

$\frac{1}{3}$ of the Height 20.7 Inches.

14693

4198

Content of the *Fruſtum* 43.4493 *Feet*.

Or,

Thus by the *Rule* on the *Lines* A and B.

B A B A

As 1 *is to* 2.1, *ſo is* 20.7 *to* 43.4 *Feet*.

Unity. *Area*. $\frac{1}{3}$ *Height*.

For *Ale* or *Beer* Gallons.

D C D C

As 18.95 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { 1.00 / 3.00 / 8.90 } *Areas* in *Ale* Gall. — Ale and Beer Gallons.

Gauge Pt. *Unity*. *Diam.*

The Sum of the Areas 12.90

B A B A

Then *as* 1 *is to* 12.9, *ſo is* 20.7 *to* 266.3 *Content* in *Ale* Gall.

Unity. *Area*. $\frac{1}{3}$ *Height*.

For *Wine* Gallons.

D C D C
As 17.14 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { 1.23 / 3.66 / 10.85 } *Areas* in *Wine* Gallons.
Gauge Pt. *Unity.* *Diam.*

The *Sum* of the *Areas* 15.74

B A B A
Then ſay, *As* 1 *is to* 15.74, *ſo is* 20.7 *to* 325.1 *Content* in *Wine* Gallons.
Unity. *Area.* $\frac{1}{3}$ *Height.*

For *Malt* Buſhels.

D C D C
As 52.32 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { .13 / .39 / 1.17 } *Areas* in *Malt* Buſhels.
Gauge Pt. *Unity.* *Diam.*

The *Sum* of the *Areas* 1.69

B A B A
Then ſay, *As* 1 *is to* 16.9, *ſo is* 20.7 *to* 34.92, the *Content* in *Malt* Buſhels.
Unity. *Area.* $\frac{1}{3}$ *Height.*

For *Pounds* of Tallow *groſs*.

D C D C
As 6.21 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { 9.37 / 27.71 / 82.74 } *Areas* in *Pounds* of Tallow *groſs*.
Gauge Pt. *Unity.* *Diam.*

The *Sum* of the *Areas* 119.82

B A B A
Then ſay, *As* 1 *is to* 119.82, *ſo is* 20.7 *to* 2480.4 *Cont.* in *Pounds* Tallow *groſs*.

For *Pounds* of Tallow *neat*.

D C D C
As 6.3 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { 9.04 / 26.74 / 79.84 } *Areas* in *Pounds* of Tallow *neat*.
Gauge Pt. *Unity.* *Diam.*

The *Sum* of the *Areas* 115.62 which *multiply* by 20.7, being $\frac{1}{3}$ of the *Length*, gives the *Cont.*

For *Pounds* of *hard* Soap.

D C D C
As 5.88 *is to* 1, *ſo is* { 19. / 32.7 / 56.5 } *to* { 10.44 / 30.94 / 92.36 } *Areas* in *Pounds* of *hard* Soap.
Gauge Pt. *Unity.* *Diam.*

The *Sum* of the *Areas* 133.74 which *multiply* by 20.7, gives the *Content.*

For

For *Pounds* of *green ſoft* Soap.

	D	C		D	C	
As 57.2 *is to* 1, *ſo is*	19.	*to*	11.04	*Areas* in *Pounds* of *green ſoft* Soap.
Gauge Pt. Unity.	32.7		32.72	
	56.5		97.64	
	Diam.			

The *Sum* of the *Areas* 141.40 which *multiply* by 20.7, gives the [*Content.*

For *Pounds* of *white ſoft* Soap

	D	C		D	C	
As 5.7 *is to* 1, *ſo is*	19.	*to*	11.09	*Areas* in *Pounds* of *white ſoft* Soap.
Gauge Pt. Unity.	32.7		32.86	
	56.5		98.10	
	Diam.			

[*Content.*

The *Sum* of the *Areas* 142.05 which *multiply* by 20.7, gives the

Note. The *Height* of the *Fruſtum* is 62 Inches, *one Third* of which is 20.7.

For *Starch* by the *Rule*, the Work ſtands thus:

	D	C		D	C	
As 66.6 *is to* 1, *ſo is*	19.	*to*	8.2	*Areas.*
Gauge Pt. Unity.	32.7		24.4	
	56.5		72.1	
	Diam.			

Starch.

The *Sum* of the *Areas* 104.7

Say again:

B	A	B	A	
As 1 *is to* 89.3, *ſo is* 20.7 *to* 2167.21 *Pounds* of *Starch.*

Starch.

To gauge an Elliptic Cone, *and an* Elliptic Fruſtum *of a* Cone.

If you have an *Elliptic Cone*, find its *Area* as you did that of an *Ellipſis*, which *multiplied* by *one Third* of its *Altitude*, gives the *Content*.

To gauge an Elliptic Cone.

An *Elliptic Fruſtum* is gauged all one as the *Fruſtum* of a *circular Cone*; only have regard to find the *Areas*, as you were taught in the *Ellipſis*, and 'tis done.

An Elliptic Fruſtum.

Of gauging a PYRAMID.

A *Pyramid* being *one Third* of a *Priſm* of the *ſame Height* and *Baſe*, and being ſo nearly related to a *Cone*, I ſhall omit giving an *Example*; and only tell you that it may have for its *Baſe* a *Square*, or any *regular Polygon*, and terminating in a *Point* at the *Top*.

To gauge a Pyramid.

The RULE.

Find the Area *of the* Baſe, *(according to what* Figure *it repreſents) which* multiply *into* one Third *of its* Height, *and you have*

The Rule.

its Solidity *in the same Measure the Dimensions* were taken *in, which you may reduce into* Feet, Gallons, Bushels, Pounds, *&c. as has been taught above. The* Frustum *of a* Pyramid *may be gauged as the* Frustum *of a* Cone, *only having regard to the Area, that you find them as Squares, or regular Polygons, and not as Circles.*

To gauge the Frustum of a Pyramid.

A Parabolic Conoid.

7. To gauge a *Parabolic* Conoid.

See *Plate* II. *Fig.* 9.

To find the Divisors for a Parabolic Conoid.

Definition. A *Parabolic Conoid* is a *Solid* formed by the *Rotation* of a *Semi-parabola* about its *Axis*. See *Page* 88. It is *equal* to $\frac{1}{2}$ of its *circumscribing Cylinder*, having the *same Base* and *Altitude*. Therefore the Divisors, *&c.* being *doubled*, will be the *Divisors* for a *parabolic Conoid.*

The RULE.

Rule for gauging a Parabolic Conoid.

Multiply *the* Square *of the* Diameter *of the* Base *by the* Height, *and then* dividing *the* Product *by the proper* Divisors, *(that is, by the Double of the Divisors for Circles) will give the* Content.

Or,

Multiply *the* Square *of the* Base *by half the* Height, *and* divide *by the proper* Divisors *for a* Circle, *will give the same* Content.

An Example.

Example. Let the *Diameter* A C be 106 *Inches*, and the *Height* B D 96 *Inches*; What's the *Content in Feet, Ale, Wine, Malt Bushels,* and *Tallow Pounds*, &c. ?

Operation.

Operation.

A C = 106
106
636
106
Square of A C = 11236
Height A D = 96
67416
101124

Feet. 4400.316) 1078656.00000 (245.13 *Feet.*

Ale. 718.1) 1078656.000 (1502.09 *Ale* Gallons.

Wine. 588.236(1078656.00000 (1833.71 *Wine* Gallons.

Malt. 5476.) 1078656.00 (196.96 *Malt* Bushels.

77.1)

77.1) 1078656.000 (13990.35 *Tallow* Pounds groſs. — Tallow groſs.

79.96) 1078656.000 (13489.9 Pounds of *Tallow* neat. — Tallow neat.

79.12) 1078656.000 (13633.1 Pounds of hard *Soap*. — Hard Soap.

65.36) 1078656.000 (16503.3 Pounds of green ſoft *Soap*. — Green ſoft Soap.

65.08) 1078656.000 (1657.43 Pounds of white ſoft *Soap*. — White ſoft Soap.

88.64) 1078656.000 (1216.895 Pounds of green *Starch*. — Green Starch.

If you would have *Gauge Points* and *Factors* to the *Parabolic Conoids*, *ſee* CHAP. XIX.

By the *Sliding Rule* on the Lines C and D.

Set the *Gauge Points* on D to *half the Height* on C, and *againſt* the *Diameter* A C on D is the *Content* on C. — By the Sliding Rule.

Operations. — Operations.

	D		C		D		C	
	46.9		48		106	245.13		*Feet.*
	18.94		48		106	1502.09		Ale *Gallons.*
	17.14		48		106	1833.71		Wine *Gallons.*
	52.32		48		106	196.97		Malt *Buſhels.*
	6.2	*is*	48	*ſo*	106	13990.35	*to*	*Pounds of* Tallow *groſs.*
As	6.3	*to*	48	*is*	106	13489.9		*Pounds of* Tallow *neat.*
	5.88		48		106	13633.1		*Pounds of hard* Soap.
	5.72		48		106	16503.3		*Pounds of green ſoft* Soap.
	5.7		48		106	16574.3		*Pounds of white ſoft* Soap.
	6.66		48		106	1216.895		*Pounds of green* Starch.
	Gauge Point.		½ *Height.*		*Diam.*	*Content.*		

8. To gauge an *Hyperbolic Conoid.* — An Hyperbolic Conoid.

See *Plate* II. *Fig.* 10.

Definition. An *Hyperbolic Conoid*, is a Solid formed by the *Rotation* of a *Semi-Hyperbola* about its *Axis*; it is *leſs* than the *Parabola*, and the Proportion to the *Cylinder* is as 5 to 12, *or* as 1 to 2.4; though 'tis evident, that as the *tranſverſe Axis*, and *intercepted Diameter* differ, ſo will the *Solidity* of the *circumſcribing Cylinder* alſo differ *in Proportion.*

Therefore the *Diviſors* are found thus, on the Lines A and B.

1. For

1. For *Feet* by the *Sliding Rule.*

		B		A	
1	For *Feet* —— ——	2200.158		5280.3792	
2	For *Ale* Gallons ——	359.05		861.72	
3	For *Wine* Gallons ——	294.118		705.8832	
4	For *Malt* Buſhels ——	2738.		6571.2	
5	For *Tallow* Pounds *groſs*	38.55		92.52	
6	For *Tallow* Pounds *neat*	39.98	*to*	95.952	*Diviſors.*
7	For *hard* Soap ——	34.56		82.944	
8	For *green ſoft* Soap —	32.65		78.432	
9	For *white ſoft* Soap —	32.54		78.096	
10	For *green* Starch.	44.32		106.368	

As 1 upon B *is to* 2.4 *upon* A, *ſo is*

Factors and Gauge Points.

If you would work by *Multiplication* when you *gauge* a *Hyperbolic Conoid*, you muſt find *Factors* or *Multipliers*, as has been taught in *Page* 52, and *Gauge Points* as on *Page* 49, ſo that *Factors* and *Gauge Points* for an *Hyperbolic Conoid* ſtand thus:

		Factors.	*Gauge Point.*
1	*Feet* —— ——	.00001893814	72.66
2	*Ale* Gallons ——	.00116046	29.35
3	*Wine* Gallons ——	.00141668	26.56
4	*Malt* Buſhels — —	.00015218	81.06
5	*Tallow* Pounds *groſs*	.01080847	9.62
6	*Tallow* Pounds *neat*	.010421773	9.79
7	*Hard* Soap ——	.012056327	9.107
8	*Green ſoft* Soap —	.012749898	8.85
9	*White ſoft* Soap —	.012804753	8.83
10	*Green or raw* Starch	.00940132	10.31

The RULE.

The Rule for gauging an Hyperbolic Conoid.

Multiply *the* Square *of the* Diameter A C by the *Height* B D, *and* divide *that* Product *by the* Diviſors *above.*

Or,

Another Rule.

Multiply *by the* Factors *above: And either of theſe give the* Content.

An Example.

Example. Let A C be 113, and B D 83 *Inches:* What's the *Content* in *Feet, Ale, Wine, Malt,* &c.?

Ope-

Operation. The Operation.

AC = 113
113

339
113
113

Square of AC = 12769
BD = 83

38307
102152

52803.792) 1059827.000000 (200.72 *Feet.* Feet.

861.72) 1059827.00000 (1229 897 *Ale* Gallons. Ale.

705.8832) 1059827.000000 (1501.42 *Wine* Gallons. Wine.

6571.2) 1059827.000 (161.29 *Malt* Buſhels. Malt.

92.52) 1059827.0000 (11455.11 *Pounds of* Tallow *groſs.* Tallow groſs.

95.952) 1059827.00000 (11045.38 *Pounds of* Tallow *neat.* Tallow neat.

8294.4) 1059827.00000 (12777.62 *Pounds of hard* Soap. Hard Soap.

78.432) 1059827.00000 (13521.68 *Pounds of green ſoft* [Soap. Green ſoft Soap.

78.096) 1059827.00000 (13570.82 *Pounds of white ſoft* [Soap. White ſoft Soap.

106.368) 1059827.00000 (9963.776 *Pounds of green* [Starch. Starch.

By the *Sliding Rule* on the Lines C and D.

D		C		D		C	
72.66		83		113		200.72	*Feet.*
29.35		83		113		1229.9	*Ale* Gallons.
As 26.56	*is to*	83	*ſo is*	113	*to*	1501.4	*Wine* Gall.
81.06		83		113		161.3	*Malt* Buſhels.
9.79		83		113		11045.4	*Pounds of Tallow* neat.
Gauge Pt.		*Height.*		*Diam.*			

By the Sliding Rule.

9. To gauge a *Parabolic Spindle.*

Of the Parabolic Spindle.

See *Plate* II. *Fig.* 11.

Definition. A *Parabolic Spindle* is a *ſolid* Body made by the *Rotation* of a *Semi-Parabola* about its *Ordinate*, which is equal to $\frac{8}{15}$ of its *circumſcribing Cylinder: Or*, As 1 *to* 1.875. Definition.

For

For:

As 8 *is to* 15, *ſo is* 1 *to* 1.875.

Now if you *multiply* the *circular Diviſors* by 1.875, the *Products* will be the *Diviſors* for a *Parabolic Spindle.*

A Table for a Parabola Spindle.

A TABLE of *Diviſors, Multiplicators* and *Gauge Points,* for a *Parabolic Spindle.*

	Diviſors.	*Factors.*	*G. Pts.*
1 *Feet*	4125.29625	.000242406	64.228
2 *Ale* Gallons	673.21875	.0014854	25.945
3 *Wine* Gallons	551.47125	.0018133	23.483
4 *Malt* Buſhels	5133.75	.0001947894	71.65
5 *Tallow* Pounds *groſs*	72.28125	.0138348	8.5
6 *Tallow* Pounds *neat*	74.9625	.01334	8.65
7 Pounds *hard* Soap	64.8	.015432	8.04
8 Pounds *green ſoft* Soap	61.21875	.0163348	7.824
9 Pounds *white ſoft* Soap	61.0125	.01639	7.81
10 *Green* or *Raw* Starch	83.1	.012033	9.11

The RULE.

The Rule for gauging a Parabolic Spindle.

Multiply *the* Square *of* A C *by* B D, *and* divide *the* Product *by the* proper Diviſors.

Or,

Multiply *by the* proper Factors *taken out of the* Table *above*; *either of which will give the* Content *required.*

An Example.

Example. Admit A C be 40, and B D 70 *Inches*; I demand the *Content* in *Feet, Ale, Wine, Malt Buſhels,* and *Pounds of hard* Soap?

Operation.

The Operation.

A C = 40
40

A C ſquared = 1600
B D = 70

Feet. 4125.29625) 112000.0000000 (27.15 *Feet.*

Ale. 673.21875) 112000.0000000 (166.364 *Ale* Gallons.

Wine. 551.47125) 112000.0000000 (203.09 *Wine* Gallons.

Malt. 5133.75) 112000.0000 (21.81 *Malt* Buſhels.

Hard Soap. 64.8) 112000.000 (1728.39 *Hard* Soap.

By

By the *Sliding Rule* on the *Lines* C and D.

	D		C		D		C
As	64.2	*is to*	70	*ſo is*	40	*to*	27.1
	25.9		70		40		166.4
	23.5		70		40		203.1
	71.65		70		40		21.8
	8.04		70		40		1728.4

10. To gauge a *Globe* or *Sphere*.*

See *Plate* II. *Fig.* 12.

Definition. A *Globe* or *Sphere*, is a *round ſolid Body*, every Part of whoſe *Surface* is *equally diſtant* from a *Point within it*, called its *Center*; and it may be conceived to be formed by the *Revolution* of a *Semi-circle* round its *Diameter*. A Globe what. How formed.

It is $\frac{2}{3}$ of the *Cylinder* that *circumſcribes* it, *or* as 1 is to 1.5, *ſo* is the *Diviſor* for the *Cylinder* to the *Diviſor* for the *Sphere*. Is two Thirds of a Cylinder.

Example. For the *Diviſor* for a *Globe* by the *Single Rule* of Three Direct, for *Feet* ſay, An Example.

As 1 *is to* 1.5, *ſo is* 2200.158

1.5

11000790
2200158

3300.2370 (57.44 The *Square Root* or *Gauge Point*.

25

107) 800
749

1144) 5123
4576

11484) 54770
45936

Remains 8834

After the ſame Manner are the other *Diviſors* and *Gauge Points* found, as you ſee done by the *Sliding Rule* below: For, becauſe the *firſt Term* is *Unity*, or 1, there is no more to do, than to *multiply* the *Diviſor* for the *Cylinder* by 1.5, and the Product is the *Diviſor* for the *Globe*, whoſe *Square Root* is the *Gauge Point* on the *Sliding Rule*.

Thus,

* In Page 47, I have found the Area of Unity to be .785398 Inches, two Thirds of which .523598 is the Content of a Sphere whoſe Diameter is Unity or 1.

By the Sliding Rule.

Thus, by the *Sliding Rule* on the *Lines* A and B.

As 1 on A *is to* 1.5 on B, *ſo is*

	A		B	Gauge Pt.
Feet	2200.158	to	3300.237	.57.44
Ale	359.05		538.575	23.2
Wine	294.118		441.177	21.0
Malt	2738.		4107.	64.1
Tallow Pounds groſs	38.55		57.825	7.6
Tallow neat	39.98		59.97	7.74
Hard Soap	34.56		51.84	7.2
Green Soap	32.65		48.975	6.99
Soft Soap	32.54		48.81	6.98
Green or raw Starch	44.32		66.48	8.15

Diviſors for a Globe

A Note. *Note*, If the *Diameter* of a *Globe* be 1, then its *Circumference* and *ſuperficial Content* are *equal*; viz. 3.141592. And if the *Diameter* be 6, then the *Solidity* and *ſuperficial Content* are *equal*, viz. 113.097312.

The RULE.

The Rule. Cube *the Globe's* Diameter, *and* divide *by the proper* Diviſors *for a* Globe, *which will quote the* ſolid Content.

Or,

A 2d Rule. 2. Multiply *the* Diameter *by the Circumference, which gives the* ſuperficial *Content in* ſquare Inches; *which* multiplied *by* $\frac{1}{6}$ *of the* Diameter, *and divided by the* ſquare Diviſor *in the Table*, Page 51, *will exhibit the* Content.

Or,

A 3d Rule. 3. Cube *the Globe's* Diameter, *and* multiply it by 11; and *then* divide *the* Product *by* 21; *and this laſt* Product divided *by the* ſquare Diviſors *(as in the* ſecond *Way) gives the* Content *in the reſpective Meaſures.*

Or,

A 4th Rule. 4. Laſtly, *If the* Cube *of the Globe's* Diameter *be* multiplied by .523598, (*the* Solidity *of a* Globe *whoſe* Diameter *is* Unity, *or* 1) *it will* produce *the ſolid* Content *in* ſquare *Meaſure.*

An Example. *Example.* Let the *Diameter* of a *Globe* be 90 *Inches*; I demand how many *Cubic Feet, Ale Gallons, Wine Gallons, Malt Buſhels*, and Pounds of *green Soap* the ſame will hold?

Ope-

Operation. The Operation.

CE = 90
90

Square = 8100
90

3300.237) 729000.00000 (220.89 *Feet.* Feet.

538.575) 729000.00000 (1353.57 *Ale* Gallons. } * Ale.

441.177) 729000.00000 (1652.39 *Wine* Gallons. } Wine.

4107.) 729000.00 (177.50 *Malt* Bushels. Malt.

48.975) 729000.00000 (14885.14 *Green* soft *Soap.* Green soft Soap.

By the *Sliding Rule* on the *Lines* C and D. By the Sliding Rule.

As the *Gauge Point* on D is to the Globe's *Diameter* on C. so is the *Diameter* on D, to the *Content* on C.

	D		C		D		C
As	57.44	*is*	90	*so*	90	*to*	220.89 *Feet.*
	23.2		90		90		1353.57 *Ale* Gallons.
	21.0	*to*	90	*is*	90		1652.39 *Wine* Gallons.
	64.1		90		90		177.5 *Malt* Bushels.
	7.0		90		90		14885.14 Gr. soft *Soap.*
	Gauge Pt.		*Diam.*		*Diam.*		*Content.*

Note. When the Globe's *Diameter* 90 is set to the *Gauge Points* 23.2 for *Ale*, and 21 for *Wine*, the *other* 90 on D doth fall *off* the Rule. Therefore you must have recourse to *Page* 49, where you have a Remedy in such Cases; for by the Pen the *Divisors* for *Ale* is 538.575, and if I remove the *Dot one Place* to the *Right Hand*, it will be 5385.75, and its *square Root* is 73.38 the new *Gauge Point*, and that for *Wine* is 66.42. A Note.

Or,

By the *Sliding Rule*, by setting 1 on C to the *old* Gauge Point 23.2 and 21 on D, the other 1 on C will give 73.38, and 66.42 on D the *new* Gauge Points.

If .523598, the *square Inches* in a *Globe* whose *Diameter* is 1, be divided by the *square Divisors*, the several *Quotients* will be *Factors*, by which if the *Cube* of the *Diameter* of any *Sphere* be *multiplied*, the *Product* will be the *Content* in the same Measure. Properties of the Globe as to Divisors and Factors.

Divisors.

* The new Gauge Points are for { *Ale* 73.38 / *Wine* 66.42

	Diviſors.	*Solidity.*	*Factors* or *Multipliers.*
Feet.	1728.)	.523598000	(.000303 *Feet.*
Ale.	282.)	.523598	(.001856 *Ale* Gallons.
Wine.	231.)	.523598	(.002267 *Wine* Gallons.
Malt.	2150.4)	.5235980	(.000243 *Malt* Buſhels.
Tallow groſs.	30.28)	.52359800	(.017291 Tallow *Pounds groſs.*
Tallow neat.	31.4)	.5235980	(.016675 Tallow *Pounds neat.*
Hard Soap.	27.14)	.52359800	(.019293 *Hard* Soap.
Green ſoft Soap.	25.67)	.52359800	(.020397 *Green ſoft* Soap.
White ſoft Soap.	25.56)	.52359800	(.020484 *White ſoft* Soap.
Raw Starch.	34.8)	.523598000	(.01504592 *Green* or *raw* Starch.

An Example. As for *Example.* The *Diameter* of the *Globe* is 90 *Inches*, its *Cube* is 729000; this *multiplied* by .000303 the *Factor* for *Feet*, the *Product* is 220.89 *Feet*, the *Content* of the Globe as below.

By the *Sliding Rule* on the *Lines* D and E.

By the Sliding Rule. Set 1 upon D to the *Factor* upon E, and *againſt* any *Diameter* upon D, is the *Content* upon E in the *ſame Meaſure.*

D	E		D	E
	.000303		90	220.89 *Feet.*
	.001856		90	1353.57 *Ale* Gallons.
As 1 *is to*	.002267	*ſo is*	90	*to* 1652.39 *Wine* Gallons.
	.000243		90	177.5 *Malt* Buſhels.
	.020397		90	14885.14 *Green ſoft* Soap.
	Multiplier.		*Diam.*	*Content.*

A notable Queſtion with ſome. When *Gaugers* have met together, I have frequently known it aſked by ſome who fancied themſelves more knowing than the reſt, What 8 upon 9 is by the *Rule?* That is, if the *Diameter* of a *Veſſel* be 9, and *Depth* be 8 *Inches*, what is the *Content? Anſwer* 1.8 *Ale Gallons.* For your *new Gauge Point* will be 60, to which ſet 8, and againſt 9 is 1.8. See *Page* 49. This, amongſt them, is thought to be a very learned and deep Queſtion. Alſo, What is 9 upon 8? *Anſwer* 1.6 *Ale Gallons.*

The Segment of a Globe.

11. To gauge the *Segment* of a *Globe.*

See *Plate* II. *Fig.* 12.

Definition. *Definition.* The *Segment* of a *Sphere* or *Globe*, is a Part of it cut off by a Plane; and therefore the *Baſe* of ſuch a *Segment* muſt

muſt always be a *Circle*, and its *Superficies* a Part of the Surface of the *Sphere*, which Segment is always leſs than half the *Sphere*.

The RULE.

The Rule.

Firſt, *You muſt always be careful to find (or take) the true* Baſe A B, *which may be exactly done (in any Part of the* Sphere) *by knowing the* whole Diameter, *or* Axis C E, *of which the* Height *of the* Segment C D *is a Part: For it is plain by the Figure (to every* Geometrician) *that* A D = D B *is a* Geometrical Mean *between* C D *and* D E: *Then for* D B *ſay*,

By the *Sliding Rule*, on the *Lines* C and D.

D C C D

As 28 *is to* 28, *ſo is* 62 *to* 41.66 the *Mean*.

Or,

As 62 *is to* 62, *ſo is* 28 *to* 41.66 as before.

Secondly, *when this is done*, multiply *the* triple Height *of the* Segment D C, *by the Square of half the* Chord, *viz.* A D = D B; *to this* add *the* Cube *of the* verſed Sine *or* Height D C; *and this Sum* divided *by the* Diviſors *for a* Globe, *gives the* Content *of the* Segment.

Note.

Note, The Square of A D = D B, is always *equal* to the *Product* of C E *multiplied* by D C.

An Example.

Example. Let the *Diameter* of a *Globe* be C E = 90, the *Chord* of the *Segment* A B = 83.32, the *verſed Sine* or *Height* C D = 28; I demand what is the Content in *Feet*, *Ale* Gallons, *Wine* Gallons, *Malt* Buſhels, Pounds of *Tallow* groſs, *Tallow* neat, *hard* Soap, *white ſoft* Soap, *green ſoft* Soap, and *green* Starch?

Operation.

The Operation.

CD = 28	CD = 28	DE = 62	
3	28	CD = 28	
84	224	496	
	56	124	
	784	1736	= *Square of* A D
	28	84	*three times* C D
	6272	6944	
	1568	13888	
	21952	145824	

add 21952 *Cube* of the *verſed Sine* or *Height*.

3300.237) 167776.00000 (50.84 *Feet*. Feet.

538.575) 167776.00000 (311.51 *Ale* Gallons. Ale.

Wine. 441.177) 167776.00000 (380.29 *Wine* Gallons.

Malt. 4107.) 167776.00 (40.85 *Malt* Bushels.

Green soft Soap. 48.975) 167776.00000 (3425.79 *Green soft* Soap.

Tallow gross. 57.825) 167776.00000 (2901.44 *Pounds of* Tallow *gross.*

Tallow neat. 59.97) 167776.0000 (2797.66 *Pounds of* Tallow *neat.*

Hard Soap. 51.84) 167776.0000 (3236.42 *Pounds of hard* Soap.

White soft Soap. 48.815) 167776.00000 (3437.32 *Pounds of white soft* Soap.

Starch. 66.48) 167776.00000 (2524.759 *Pounds of green* Starch.

By the *Sliding Rule.*

By the Directions in *Chap.* XIII. you may *divide* the several *Dividends*, and you will find them on the Rule the same as were found by the Pen.

Of the Frustum of a Globe.

12. To *gauge* the *Frustum* of a *Globe.*

See *Plate* II. *Fig.* 12.

Definition. *Definition.* The *Frustum* of a *Globe* is a Piece cut off; or as in this *Figure*, it is the Part AEB, and is more than half the *Globe.*

The RULE.

The Rule. *For this is the same as for the* Segment of a Globe, *which see in* Page 112.

An Example. *Example.* Let the *Diameter of the Globe* be 90, the *Chord of the Segment* AB=83.32, and the *Height of the Segment* DE=62 *Inches*; I demand how many *Feet*, *Ale* and *Wine* Gallons, *Malt* Bushels, *Pounds* of Tallow *gross*, *Pounds* of Tallow *neat*, *Pounds* of *hard* Soap, *Pounds* of *white soft* Soap, *Pounds* of *green soft* Soap, and *Pounds* of *green* Starch the *Frustum* AEB will contain?

Operation.

Operation.

DE=62	DE=62
3	62
186	124
	372
	3844
	62
	7688
	23064
	Cube of DE = 238328

DE

Plate 2.

Fig. 1 Page 81
An Oval, or Ellipsis. &c.

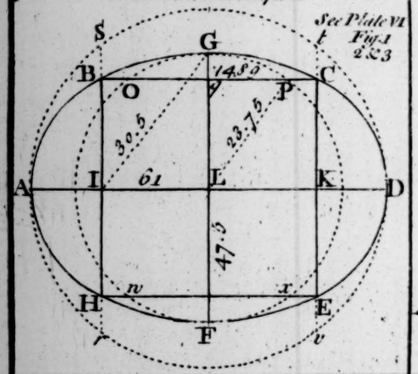


Fig. 2 Page 88
A Parabola

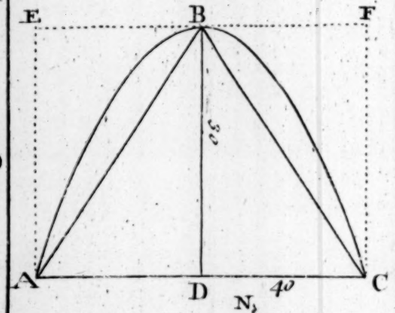


Fig. 3 Page 89
A Cycloid or Trochoid



Fig. 4 Page 92
A Cube or Die

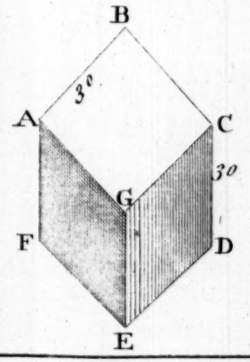


Fig. 5 Page 93
A Parallelepipedon or Six Sided Solid

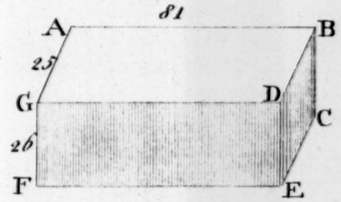


Fig. 6 Page 95
A Prism, or three sided Solid

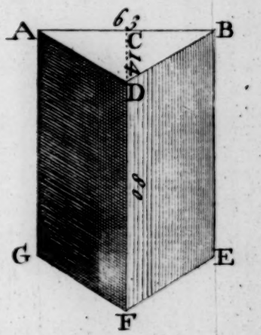


Fig. 7 Page 96
A Cylinder or Rolling Stone of a Garden

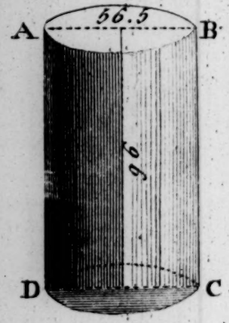


Fig. 8 Page 89 & 98
A Cone,

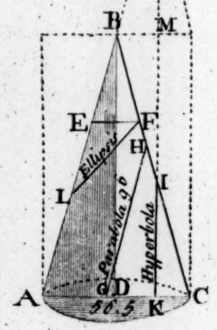


Fig. 9 Page 104
A Parabolic Conoid

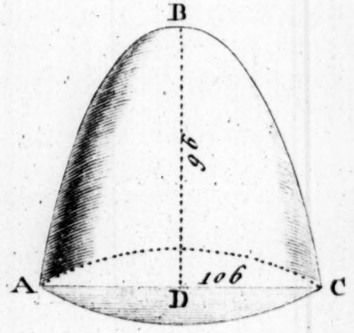


Fig. 10 Page 105
A Hyperbolic Conoid

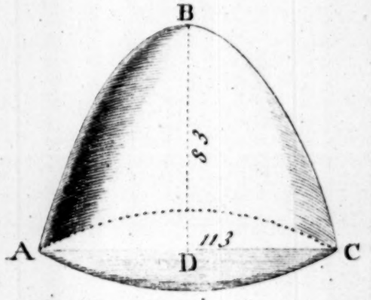


Fig. 11 Page 107
A Parabolic Spindle

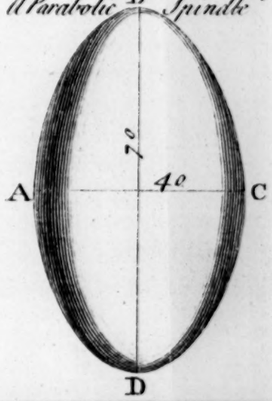
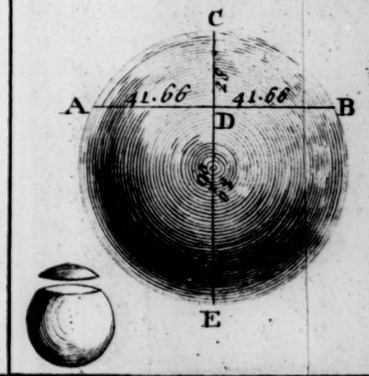


Fig. 12 Page 109 & 112
A Globe,



to fold out facing page 114.

DE = 62
CD = 28

496
124

1736 = q A D.
Triple of DE = 186

10416
13888
1736

322896
Cube of DE *add* 238328

3300.237)	561224.00000	(170.06 *Feet.*	Feet.
538.575)	561224.00000	(1042.05 Ale *Gallons.*	Ale.
441.177)	561224.000000	(1272.06 Wine *Gallons.*	Wine.
4107.)	561224.00	(136.65 Malt *Bushels.*	Malt.
49.02)	561224.0000	(11448.06 *Pounds of green soft* Soap.	Green soft Soap.
57.825)	561224.00000	(9705.56 *Pounds of* Tallow *gross.*	Tallow gross.
59.97)	561224.0000	(9358.41 *Pounds of* Tallow *neat.*	Tallow neat.
51.84)	561224.0000	(10826.08 *Pounds of hard* Soap.	Hard Soap.
48.81)	561224.0000	(11498.14 *Pounds of white soft* Soap.	White soft Soap.
66.48)	561224.00000	(5441.997 *Pounds of green* Starch.	Green Starch.

If you *add* the *Content* of the *Segment* A C B to the *Content* of the *Frustum* A E B, the Sum will be equal to the *Content* of the *Globe* of which the *Segment* is a *Part*.

13. To *gauge* a *Spheroid*.

To gauge the Spheroid.

See *Plate* III. *Fig.* 1.

Definition. A *Spheroid* is produced by the *Motion* of a *Semi-Ellipsis*, the transverse *Diameter* remaining fixed, and it is *equal* to $\frac{2}{3}$ of its *circumscribing Cylinder*. See the *Globe* on *Page* 109. Definition.

The RULE.

Multiply *the* Square *of the* conjugate Diameter C D into two Thirds *of the* transverse Diameter A B, *and* divide *the* Product The Rule.

by the circular Diviſors *for* Feet 2200.158, *for* Ale 359.05, *for* Wine 294.118, *for* Malt 2738, &c. (*See Page* 51.) *and the* Quotients *will be the* Content.

Or, *which is better*,

A ſecond Rule. Multiply *the* Square *of the* conjugate Diameter *by the* tranſverſe Diameter; *and that Product divided by the* Diviſors *proper for a* Spheroid, (*the ſame of the* Globe *in Pages* 109, &c.) *will give the* Content.

An Example. *Example.* Let the *tranſverſe Diameter* A B be = 50 Inches, and the *conjugate Diameter* C D = 31; I demand the *Content* in *Feet*, *Ale*, *Wine*, *Malt*, and Pounds of raw *Starch?*

Operation.

The Operation.

C D = 31
31
—
31
93
—
Square = 961
A B = 50
—

Feet. 3300.237) 48050.00000 (14.55 *Feet.*

Ale. 538.575) 48050.00000 (89.22 *Ale* Gallons.

Wine. 441.177) 48050.00000 (108.61 *Wine* Gallons.

Malt. 4107.) 48050.000 (11.699 *Malt* Buſhels.

Starch. 66.48) 48050.00000 (722.773 *Green* or *raw* Starch.

By the *Sliding Rule*.

By the Sliding Rule.

	D		C		D		C	
As	57.44	*is*	50	*ſo*	31	*to*	14.55	*Feet.*
	23.2		50		31		89.2	*Ale* Gallons.
	21.	*to*	50	*is*	31		108.9	*Wine* Gallons.
	64.1		50		31		11.7	*Malt* Buſhels.
	8.15		50		31		722.773	*Raw* Starch.
	Gauge Point.		*Diam.*		*Diam.*		*Content.*	

Of the irregular Priſmoid.

To gauge an IRREGULAR *Priſmoid.*

As *Veſſels* in the *Form* of *irregular Priſmoids* are ſometimes met with in the *Practice* of *gauging*, and as moſt Authors have given *falſe Rules* for finding their *Contents*; I ſhall here give the moſt *certain Method* for gauging Veſſels of this kind.

Mr. *Ward*, &c. miſtaken. Mr. *Ward*, (in his *Young Mathematician's Guide*, pag 437.) and ſeveral others, having demonſtrated in the *Fruſtum* of a *Cone*, or *Pyramid*, That the *Content in Inches* is equal to *one Third* of the

the *Areas* of the *Top*, *Bottom*, and *Mean* between them, *multiplied* by the *Depth* of the *Fruſtum*; ſeem to conclude the ſame *Theorem* would take place in any *irregular Priſmoid:* But this will ſufficiently appear to be *erroneous*, if it be conſidered, That if the *Sides* of an *irregular Priſmoid* were continued, they would not meet in a *Point*, like the *Fruſtum* of a *Cone* or *Pyramid*, but in a *Line*. To render this plainer, let *Fig.* 23. *Plate* I. be a *Priſmoid*, whoſe *Top* is an *Oblong*, the *Sides* of which are 16 and 18 Inches; and the *Bottom* an *Oblong* whoſe *Sides* are 20 and 24 Inches: Now the *Dimenſions* of the *Top* and *Bottom* not being *alike proportional*, the *Sides* being produced, the leſſer *Sides* will *meet in a Line*, and will be in the Form of a *Triangular Priſm*, cut off obliquely at each End. The UPPER *Fruſtum* of this *Priſmoid* may be gauged by the following

RULE.

Rule for *Upper* Fruſtum.

To one Sixth *of the* Length *of the* Ridge, *add* one Third *of the* Length *of the* Bottom; *multiply this* Sum *by the* Breadth at Bottom, *and this* Product *by the* Height; *the* laſt Product *is the* Content in Inches, *which divided by* 282, *or* 231, *gives the* Content *in* Ale *or* Wine Gallons.

But the LOWER *Fruſtum*, which is the Form of all Veſſels of this Kind, muſt be gauged by the following

RULE.

Rule for *Lower* Fruſtum.

Multiply half *the* greater Breadth *by the* leſſer Length; *and* half *the* greater Length *by the* leſſer Breadth; *and* one Third *of the* Difference of the Lengths *by the* Difference of the Breadths: *Then* add *theſe* THREE Products *together*, *and* multiply *the* Sum *by the* Depth, *the* Product *is the* Content in Inches, *which* divided *by* 282 *or* 231, *gives the* Content in Ale *or* Wine Gallons.

An Example.

Example. Let *Fig.* 23, *Plate* I. be the *lower Fruſtum* of an *irregular Priſmoid*, whoſe *Breadth at Top* is 16 Inches, and *Length* is 18 Inches; the *Breadth at Bottom* 20, and *Length* 24 Inches; and the *Depth* 30 Inches; what is the *Content* in *Ale Gallons?*

Half the *greater Breadth* is 10, which *multiplied* by the *leſſer Length* 18, gives 180. The *Difference* between the *greater Length* 24, and the *leſſer Length* 18, is 6, *one Third* whereof is 2, which *multiplied* by 4, the *Difference of the Breadth*, gives 8. Alſo *half* the *greater Length* is 12, which *multiplied* by the *leſſer Breadth* 16, gives 192. Then 192, the *Product* of the *greater Length* by the *leſſer Breadth*, and 180, the *Product* of the *greater Breadth* by the *leſſer Length*, and 8, the *Product* of *one Third of the Difference of the Lengths*, by the *Difference of the Breadths*, being *added* together make 380, which *multiplied* by 30, the *Depth*, gives 11400, the *Content* in *Inches*; which being *divided* by 282, quotes 40.4 the *Content* in *Ale Gallons*.

TO what is already delivered, I ſhall add the *Proportions* that the reſpective *Solids* have to the *Cube* and *Cylinder* having the ſame *Baſe* and *Altitude*.

		Inches.
A Cube.	1. A *Cube*, whoſe *Side* is 12 *Inches*, the *ſolid Content* is	1728.
A Triangular Priſm.	2. A *Triangular Priſm*, having its *Baſe* and *Altitude* equal, *viz.* 12 *Inches*, its *Solidity* is	748.24
A ſquare Pyramid.	3. A *Square Pyramid*, having its *Height* and *Baſe* equal to the *Baſe* of the *Cube* 12, is $\frac{1}{3}$ of its *Content*	576.
A Triangular Pyramid.	4. A *Triangular Pyramid*, whoſe *Height* and *Baſe* is 12 *Inches*, is near $\frac{1}{7}$ of it, and its *Content* is	249.4152
A Cylinder.	5. A *Cylinder*, whoſe *Diameter* and *Height* is 12 *Inches*, equal to the *Side* of the *Cube*, is $\frac{11}{14}$ of it, and its *Solidity* is	1357.17
A Sphere.	6. A *Sphere* or *Globe*, whoſe *Axis* is 12 *Inches*, equal to the *Side* of the *Cube*, is $\frac{11}{21}$ of it, its *ſolid Content* is	904.78
A Cone.	7. A *Cone*, whoſe *Diameter* of its *Baſe* is 12 *Inches*, equal to the *Side* of the *Cube*, is $\frac{5}{7}$ of it, and its *ſolid Content* is juſt $\frac{1}{3}$ of the *Cylinder* above	452.38829
A Parabolic Conoid.	8. A *Parabolic Conoid*, whoſe *Diameter* at the *Baſe* is 12 *Inches*, equal to its *Height* is half its *circumſcribing Cylinder*, and its *ſolid Content* is	678.583
A Hyperbolic Conoid.	9. A *Hyperbolic Conoid*, whoſe *Height* and *Diameter* at the *Baſe* is 12 *Inches*, *is* $\frac{5}{7\frac{1}{2}}$ of its *circumſcribing Cylinder*; therefore its *ſolid Content* is	565.49
A Parabolic Spindle.	10. A *Parabolic Spindle* is $\frac{8}{15}$ of its *circumſcribing Cylinder*; and therefore its *Content* is	723.824
A Spheroid.	11. A *Spheroid* is $\frac{2}{3}$ of its *circumſcribing Cylinder*; and conſequently its *Content* is	904.78

See *Plate* III. *Fig.* 1.

CHAP.

CHAP. XXII.

Of the MEASURE *of* Exciſeable Liquors, *&c.*

What Liquors are meaſured by the *Wine Gallon.*

Wine, Cyder, Perry, Verjuice, are 63 Gallons to the Hogſhead, each Gallon containing 231 Cubic Inches.

Mead, Waſh, Low Wines, Spirits, Brandy, are charged by the *Wine Gallon.*

Sweets, 31 ½ Gallons to the Barrel, } *Wine Meaſure.*
Mum, 32 Gallons to the Barrel, }

In the COUNTRY.

Ale, Beer, and Vinegar in the *Country.*

Beer, Ale, and Vinegar, are 34 *Gallons* to the *Barrel*, each *Gallon* containing 282 *Cubic Inches.*

In LONDON.

Ale, Beer, and Vinegar in *London.*

Beer is 36, Ale is 32, and Vinegar is 34 *Gallons* to the *Barrel*, each *Gallon* containing 282 *Cubic Inches.*

To reduce London BEER *Barrels to* London ALE *Barrels.*

The RULE.

ADD one eight *Part of the Barrels, Firkins, and Gallons given, to the Barrels, Firkins, and Gallons given, and that Sum is the Number of Barrels, Firkins, and Gallons in* Ale *Meaſure.*

Example. I demand how many Barrels, Firkins, and Gallons of *Ale* are contained in 34 Barrels, 2 Firkins, and 7 Gallons of *Beer?*

	B	F.	G.	
8)	34	2	7	
	4	1	2	*Add*
	39	0	1	The Anſwer in *Ale.*

As 8 is contained 4 times in 34, and 2 remains; I put 4 in the Place of Barrels, and the 2 which remains being 2 Barrels or 8 Firkins I *add* them to the 2 Firkins, which makes 10 Firkins; which divided by 8 gives 1 Firkin and 2 Gallons; the 1 I put under Firkins, and the 2 under Gallons, and theſe Sums *added* together produce 39 B. 0 F. 1 G. of Ale *London* Meaſure.

To reduce London ALE *Barrels to* London BEER *Barrels.*

The RULE.

SUBTRACT one ninth *Part of the Barrels, Firkins, and Gallons, and* the Remainder *will be the Number of Barrels, Firkins, and Gallons in* Beer *Meaſure.*

Example. I demand how many Barrels, Firkins, and Gallons, *Beer* Meaſure, are contained in 39 B. 2 F. 3 G. of *Ale?*

9)	39	2	3	
	4	1	5	Subtract.
	35	0	7	The Anſwer in *Beer.*

A TABLE *of* WINE MEASURE.

Names.		Averdupois Weight. *lb.* *oz.* *dr.*	Cubic Inches.	Pints	Quarts.	Gall.	Rund.	Barr.	Tier.	Hogsh.	Punch.	Butt.	Ton
In a	Ton	2042 : 9 : 4	58212	2016	1008	252	14	8	6	4	3	2	1
	Butt	1021 : 4 : 10	29106	1008	504	126	7	4	3	2	$1\frac{1}{2}$	1	
	Punchion	680 : 13 : 12	19404	672	336	84	4.66	2.66	2	1.33	1		
	Hogshead	510 : 10 : 5	14553	504	252	63	$3\frac{1}{2}$	2	$1\frac{1}{2}$	1			
	Tierce	340 : 6 : 14	9702	336	168	42	2.33	1.33	1				
	Barrel	251 : 6 : 10	7276.5	252	126	$31\frac{1}{2}$	1. $\frac{3}{4}$	1					
	Rundlet	145 : 14 : 6	4158	144	72	18	1						
	Gallon *	8 : 1 : 11	231	8	4	1							
	Quart	2 : 0 : $6\frac{3}{4}$	$57\frac{3}{4}$	2	1								
	Pint	1 : 0 : 3.375	28.875	1									

N. B. An *Anchor* is 10 *Gallons.*

* The common *Wine Gallon* ſealed at *Guildhall* in *London*, by which all *Wines*, *Brandies*, *Spirits*, *Strong Waters*, *Mead*, *Perry*, *Cyder*, *Vinegar*, *Oil* and *Honey*, &c. are meaſured and ſold; is *ſuppoſed* to contain 231 *Cubic Inches:* But Dr. *Wybard*, in his *Tectometry*, *Page* 289, doth ſuppoſe the *Wine Gallon* to contain but 224 or 225 *Cubic Inches* at the moſt; and purſuant to this Account an Experiment was made by Mr. *Richard Walker* and Mr. *Philips Shales*, two *General Officers* in the *Exciſe:* They cauſed a Veſſel to be made of Braſs, in the Form of a *Parallelopipedon*, each Side of its *Baſe* was 4 *Inches*, and its *Depth* 14 *Inches*, ſo that its *juſt Content* was 224 *Cubic Inches*. This Veſſel was produced at *Guildhall* in *London* (*May* 25, 1688.) before the *Lord Mayor*, the *Commiſſioners of Exciſe*, the Rev. Mr. *Flamſtead*, Aſtron. Reg. Mr. *Halley*, and ſeveral other Ingenious Gentlemen, in whoſe Preſence Mr. *Shales* did exactly fill the aforeſaid Brazen Veſſel with clear Water, and very carefully emptied it into the old Standard *Wine Gallon* kept in *Guildhall*, which did ſo exactly fill it, that all then preſent were fully ſatisfied the *Wine Gallon* doth contain but 224 *Cubic Inches* (*This notable Experiment I ſaw tried.*) However, for *ſeveral Reaſons*, it was at that time thought convenient to continue the former *ſuppoſed* Content of 231 *Cubic Inches* to be the *Wine Gallon*, and that all Computations in *gauging* ſhould be made from thence as above. WARD's *Mathematicks*, *Page* 34.

BEER MEASURE *for* London, *is* 36 Gallons *to the* Barrel.

Names.		Cubic Inches.	Pints	Qnts.	Gall.	Fir.	Kil.	Barr.	Hd.	But.	Ton.
In a Ton	are	60912	1728	864	216	24	12	6	4	2	1
Butt		30456	864	432	108	12	6	3	2	1	
Hogshead		15228	432	216	54	6	3	1½	1		
Barrel		10152	288	144	36	4	2	1			
Kilderkin		5076	144	72	18	2	1				
Firkin		2538	72	36	9	1					
Gallon		282	8	4	1						
Quart		70½	2	1							
Pint		35¼	1								

ALE MEASURE, *for* London, *is* 32 Gallons *to the* Barrel.

Names.		Cubic Inches.	Pints	Qts.	Gall.	Fir.	Kil	Barr.	Hog
In a Hogshead	are	13536	384	192	48	6	3	1½	1
Barrel		9024	256	128	32	4	2	1	
Kilderkin		4512	128	64	16	2	1		
Firkin		2256	64	32	8	1			
Gallon		282	8	4	1				
Quart		70½	2	1					
Pint		35¼	1						

BEER *and* ALE MEASURE, *for the* Country, *is* 34 Gallons * *to the* Barrel.

Names.		Cubic Inches.	Pints	Qts.	Gall.	Fir.	Kil.	Barr.	Hog
In a Hogshead	are.	14382	408	204	51	6	3	1½	1
Barrel		9588	72	136	34	4	2	1	
Kilderkin		4794	136	68	17	2	1		
Firkin		2397	68	34	8½	1			
Gallon		282	8	4	1				
Quart		70½	2	1					
Pint		35¼	1						

* And as *One Pound Troy* is in Proportion to the *Cubic Inches* in *a Wine Gallon*, ſo is *One Pound Avoirdupoiſe* to the *Cubic Inches* in an *Ale Gallon*, that is, 12 : 231 :: 14 $\frac{13}{20}$: 28½ very near the *Cubic Inches* contained in an *Ale Gallon*, as appears from an Experiment made by one *Nicholas Gunton*, General *Gauger* in the *Exciſe*, about 48 Years ago, who, by ſuch a Veſſel mentioned in the laſt *Page*, did find the Standard *Ale Quart* kept in the *Exchequer*, (vide 12 Car. II.) to contain 70½ *Cubic Inches*; conſequently the *Ale Gallon* muſt contain 282 *Cubic Inches*, and from thence theſe three *Tables* are computed.

WARD's *Mathematicks*, Page 35.

CHAP.

CHAP. XXIII.

Concerning the STANDARD Wincheſter BUSHEL *and* GALLON *kept in his Majeſty's* Exchequer; *ſhewing* when *and* how *their Contents were ſettled by Act of Parliament.* ALSO *the* STANDARD Avoirdupoiſe *and* Troy *Weights kept in the* Exchequer, *compared with* each other, *and with the ſaid* Buſhel, Half Buſhel, Peck *and* Gallon; *with* Tables *for finding whether the* Content *of the ſaid* Corn-*Meaſures are* equal to *the* Standard, *or not, when their* Diameter *or* Depth *vary from it.*

Of the *Wincheſter* Buſhel.

I Shall here, for the Satisfaction of the inquiſitive Reader, give an Account how the Content of the *Wincheſter* Buſhel came to be aſcertained.

11 *Hen.* VII. chap. 4.

By the *Statute* of the 11th *Hen.* VII. *Cap.* 4. it is enacted, That *Standard* Weights and Meaſures be made and ſent to the ſeveral Cities, Boroughs, and Market-Towns *therein mentioned,* which wa accordingly done. But the *Statute* of the

12 *Hen.* VII. chap. 5.

12th *Hen.* VII. *Cap.* 5. recites, that upon more diligent Examinations, the ſaid *Standard* Weights and Meaſures *were found defective:* And enacts, That the Meaſure of a *Buſhel* ſhall contain *eight Gallons* of *Wheat,* and that every *Gallon* contain *eight Pounds Troy* of *Wheat,* and that every *Pound* contain 12 *Ounces Troy weight,* and every *Ounce* contain 20 *Sterlings,* (now 20 *Penny-weights,*) and every *Sterling,* or *Penny-weight,* be of the Weight of 32 Corns of Wheat that grew in the Middle of the Ear of Wheat, and that a *Standard* of a *Buſhel* and a *Gallon* after this aſſize be made and kept in the *King's Treaſury* for ever: And *new* Buſhels and Gallons were ordered to be made, and ſent to the ſeveral Cities, Boroughs, *&c.* and the *old ones* brought back and broken.

Standard Buſhel and Gallons, in whoſe Cuſtody.

Accordingly, there remains now in the Cuſtody of the *Chamberlain* of the *Exchequer,* a *Standard* Braſs Buſhel, and a *Standard* Gallon agreeing thereto: Upon the Buſhel there is this Inſcription,

Henricus Septimus, Dei Gratiâ, Rex Angliæ & Franciæ.

An Experiment to aſcertain the Content of the Standard.

In *February* 1696, when a Bill was depending in Parliament for laying a Duty on *Malt,* Mr. *George Tollet,* Mr. *Phil. Shales,* Mr. *Tho. Jett,* and Mr. *Tho. Everard,* in the Preſence of ſeveral Mem-

Members of the *Houſe of Commons*, did make an Experiment in order to find the *true Content* of the ſaid *Standard Buſhel* in the *Exchequer*; and the ſaid *Braſs Buſhel* being exactly filled with common Spring Water, and the ſaid Water being meaſured out again by a regular *Parallelopipedon* *, whoſe *Baſe* was *four* Inches *ſquare*, and the *Depth* 14 Inches, was found to contain 2145.6 *ſolid* Inches; the ſaid Water was alſo weighed by the *Standard Weights* in the *Exchequer*, and by a Beam which would turn with ſix Grains, with 30 Pounds in each Scale, and found to be 1131 *Ounces* and 14 *Penny-weights* Troy.

The Diameter and Depth, why ſettled as they now ſtand.

Now to ſettle the *Dimenſions* for a *Buſhel* to anſwer the *ſaid Standard*, theſe were agreed upon as moſt convenient, *viz.* 18.5 Inches *Diameter*, and 8 Inches *deep*, for a *Cylindrical* Veſſel of *theſe* Dimenſions will contain 2150.42 *ſolid* Inches; which exceeding the Content of the *Standard* Buſhel but 4.82 Inches, and there being no other *convenient* Dimenſions without counting to the *hundredth Part of an Inch*, that would come ſo near as theſe, it was enacted in the Act for laying a Duty upon *Malt*,

The Deſcription of the Buſhel.

That every round Buſhel with a plain and even Bottom, being eighteen Inches and a half (throughout) Diameter, and eight Inches deep, ſhall be eſteemed a legal Wincheſter *Buſhel, according to the Standard in his Majeſty's* Exchequer.

Of the Standard Avoirdupoiſe and Troy Weights in the Exchequer.

When this Experiment was made at the *Exchequer*, the ſaid Gentlemen alſo compared the *Standard Troy* Weights with the *Standard Avoirdupoiſe* Weights, and found that 15 Pounds *Avoirdupoiſe* were equal to 18 Pounds, 2 Ounces, and 15 Penny-weight *Troy*; ſo that 140 Ounces *Avoirdupoiſe* are equal to 218.75 Ounces *Troy*, which, in the leaſt Terms *in whole Numbers*, are as follows:

Avoirdupoiſe.	*Troy.*
192	175 *Ounces.*
144	175 *Pounds.*

The *Buſhel*, as now ſettled, contains 2150.42 *ſolid* Inches, as ſhewn above, and will contain of common Spring Water 1134.34 Ounces *Troy:* For,

The Proportion.

As 2145.6 the Inches in the Braſs Standard
Is to 1131.7 the *Troy* Ounces of Water it contained,
So is 2150.42 the Content of a Buſhel, as now ſettled,
To 1134.34

The *Inches* and *Water* contain'd in a Buſhel, *&c.*

Hence the following Table ſhews the Content in *ſolid Inches* of a *Buſhel*, *half Buſhel*, *Peck*, and *Gallon*; and likewiſe the *Weight* of *Water* that *each* will contain.

Inches.

* See how the Content of the *Wine Gallon* at *Guildhall, London*, was found by this Veſſel, *Page* 120.

	Inches.	Troy. lb.	oz.	pwts.	Avoirdupoise. lb.	oz.	dr.
Bushel ——	2150.42	94.	6.	6.88	77.	12.	8.60
Half Bushel	1075.21	47.	3.	3.44	32.	14.	4.30
Peck ——	537.60	23.	7.	11.72	19.	7.	2.15
Gallon — —	268.80	11.	9.	15.86	5.	11.	9.05
Quart ——	67.2	2.	11.	8.96	1.	6.	14.26
Pint — —	33.6	1.	5.	10.48	0.	11.	7.13
½ *Pint* ——	16.8	0.	8.	15.24	0.	5.	11.56

Use of the above Table.

By this Table 'tis easy to make any of the Measures therein mention'd, or to try such as are already made by the Help of a good Pair of Scales and true Weights. But where these are not to be had, the *following Table* shews the *Diameters* and *Depths* that will answer to the *Bushel*, *half Bushel*, *Peck*, and *Gallon*, provided they be equally wide from the Top to the Bottom.

A TABLE *for trying whether any* Bushel, Half Bushel, Peck, *or* Gallon, *be equal to the* Standard.

	Bushel.		½ *Bushel.*		*Peck.*		*Gallon.*		
	Diam.	Depth.	Diam.	Depth.	Diam.	Depth.	Diam.	Depth.	
	17.5	8.94	13.7	7.30	10.7	5.98	8.3	4.97	
	17.6	8.84	13.8	7. 2	10.8	5.87	8.4	4.85	
	17.7	8.74	13.9	7. 9	10.9	5.76	8.5	4.74	
	17.8	8.64	14.0	6.98	11.0	5.66	8.6	4.63	
	17.9	8.55	14.1	6.89	11.1	5.56	8.7	4.52	
	18.0	8.45	14.2	6.79	11.2	5.46	8.8	4.42	
	18.1	8.36	14.3	6.69	11.3	5.36	8.9	4.32	
	18.2	8.27	14.4	6.60	11.4	5.27	8.0	4.23	
	18.3	8.18	14.5	6.51	11.5	5.18	9.1	4.13	
	18.4	8. 9	14.6	6.42	11.6	5. 9	9.2	4. 4	
Standard.	18.5	8.00	14.7	6.34	11.7	5.00	9.3	3.96	*Standard.*
	18.6	7.91	14.8	6.25	11.8	4.92	9.4	3.87	
	18.7	7.83	14.9	6.17	11.9	4.83	9.5	3.79	
	18.8	7.75	15.0	6. 8	12.0	4.75	9.6	3.71	
	18.9	7.67	15.1	6.00	12.1	4.68	9.7	3.64	
	19.0	7.58	15.2	5.93	12.2	4.60	9.8	3.56	
	19.1	7.50	15.3	5.85	12.3	4.52	9.9	3.49	
	19.2	7.42	15.4	5.77	12.4	4.45	10.0	3.42	
	19.3	7.35	15.5	5.72	12.5	4.38	10.1	3.36	
	19.4	7.27	15.6	5.63	12.6	4.31	10.2	3.29	
	19.5	7.20	15.7	5.56	12.7	4.24	10.3	3.23	

The USE *of the foregoing* TABLE.

Example 1. Suppoſe the *Diameter* of a *Buſhel* be 19, and five tenth Parts of an Inch: Find this in the *firſt* Column, and againſt it you have 7.20, that is ſeven Inches and almoſt a Quarter: Now if the Buſhel be exactly ſo deep, it is a *legal* Buſhel. Example 1.

Example 2. Suppoſe the *Diameter* of a *Buſhel* be 19 Inches, and the *Depth* but 7.1, you will find by the Table the *Depth* ought to be 7.58 Inches to be equal to the Standard; and therefore you may conclude ſuch a Buſhel is *too little:* Now to find how much it wants ſay, Example 2.

As 7.58 *Inches*, the *Depth* in *the Table*,
Is to 32. the *Quarts* in a *Buſhel*.
So is 7.1 the *Depth* of the *Buſhel given*,
To 29.9 *Quarts*; that is twenty-nine Quarts, and nine tenth Parts, (which is 30 Quarts *ferè*;) *ſubtract* from 32. and it leaves 2.1 Quarts, and ſo much that Buſhel is *leſs* than the Standard. The like Method may be obſerved for trying the Truth of the *half Buſhel*, *Peck* and *Gallon*.

N. B. If the Buſhel *be not exactly round*, and the *Difference* of the *Diameters* be not above an Inch, *add* the *longeſt* and *ſhorteſt* Diameters together, and take *half the Sum* for the *mean* Diameter, and proceed as above. A Note.

Example 3. But ſuppoſe you would have a *Buſhel* 16 Inches *Diameter*, what *Depth* muſt it be to be *equal* to the *Standard* Buſhel. Example 3.

The RULE.

Divide Unity (*or* one Buſhel) *by the* Area *of the* given Diameter, *and the* Quotient *is the* Depth *that will make a Buſhel of that* Diameter. The Rule.

See the *Work*.

Diameter 16 } *Inches*.
16 }

96
16

Area. *Depth.*
2738) 256.0000 (.0935) 1.00000 (10.7

= to 10 Inches and almoſt three *Quarters*, and ſo *deep* a Buſhel muſt be, that is 16 Inches *Diameter* to be *equal* to the *Standard*.

But this is more expeditiouſly performed by the *Sliding Rule* on the Lines C and D, *viz*,

Set 16, the given *Diameter* on D to 1 upon C, and againſt the *Gauge Point* 52.32 on D, is 10.7, the *Depth* upon C, *&c.*

CHAP.

CHAP. XXIV.

Shewing how to gauge all ſorts of Open Veſſels.

1. Of Veſſels, as *Tuns*, *Backs*, *Coolers*, *Coppers*, &c.

Of Maſh-Tuns and Guile-Tuns

MASH-*Tuns* and *Guile-Tuns*, are generally the *Fruſtums* of a *Cone*, and it matters not whether they ſtand upon the *leſſer* or *greater* Baſe, for the Method of gauging them is all one. See *Plate* IV. *Fig.* 2.

The RULE.

The Rule.

With your Sliding Cane, *take the* Diameter *in the* Middle *of* every 10 Inches *from the* Bottom upwards, *and enter them with their* Areas *in* Ale Gallons *in your* Dimenſion-Book, *and alſo in your* Stock-Book, *which will be a* Table *for that* Tun.

Or,

The Diameter *may be found* in any Part thereof *by knowing the* Depth, *and the* top *and* bottom Diameters, *by this*

RULE.

The Rule.

Divide *the* Difference *between the* top *and* bottom Diameters *by the* Depth *of the* Tun, *and the* Quotient *is a* common Multiplier, *by which* multiply *any* Depth, *and* add *the* Product *to the* bottom Diameter, *(if the* Tun *ſtands on the* leſſer Baſe) *or* ſubtract *it from the* bottom Diameter *(if the* Tun *ſtands upon the* greater Baſe) *and the* Sum *or* Difference *is the* true Diameter *at the* Depth *then taken.*

An Example.

Example. Let the *Depth* E F be 60, the *top Diameter* A B =48, and the *bottom* C D=40 *Inches*; I demand the *Diameter* of the *Middle* of *every* 10 *Inches* from the *Bottom upwards*, and alſo how many *Ale Gallons* the *Tun* will hold?

The Operation.

Operation.

A B=48
D C=40

60) 8. (.1333 the *common Multiplier.*
The *Depth.* 5

.6665 + 40 = 40.7 the *Diameter* at 5 *Inches deep.* And therefore .1333 x 15=2.+40=42 the *Diameter* at 15 *Inches deep.* Again .1333 x 25=3.3+40=43.3 the *Diameter* at 25 *Inches deep.* And, .1333 x 35=4.7+40=44.7 the *Diameter* at 35 *Inches deep:* And by proceeding thus I have the *Diameter* in the *Middle* of *every* 10 *Inches* from the *Bottom upwards, viz.* at 45 *Inches deep* the *Diameter* is 46, and at 55 it is 47.3, as you ſee in the *Figure.* Now, by the *Sliding Rule* find *Areas* (as I have taught in *Page* 33.) in *Ale Gallons*, and they will ſtand thus:

Diam.

Diam.	*Area.*	*Content.*
47.3	6.23	62.3
46.	5.89	58.9
44.7	5.56	55.6
43.3	5.22	52.2
42.	4.91	49.1
40.7	4.61	46.1

The *Sum* is the *Content* of the *Tun* 324.2 *Ale Gallons*.

By *removing* the Dot *one Place* to the *right Hand*, every *Area* is *multiplied* by 10, which, *added together*, gives the *Content* of the *Tun* in *Ale Gallons*:

But when the *Depth* of the *Tun* is not *even* 10 *Inches*, (as this is) then you muſt *add together* as many *Areas* as are taken in the *Middle* of *every* 10 *Inches*; and the *other Part* of the *Depth*, which is not *even* 10 *Inches*, as ſuppoſe 4, 5, 6, or 8, *&c.* muſt be *multiplied* by the *uppermoſt Area*, which *Product added* to the *Sum* of the *other Areas*, gives the *Content*: And this is the *practical Way* of caſting up Gauges by thoſe employed in the *Exciſe*.

How to inch a Tun.

BUT to find what the *Tun* will hold upon *every Inch*, (which is called *Inching the Tun*,) as is requiſite in *larger Tuns* uſed by *common Brewers*; proceed thus: The *Content* of the *Tun*, as it ſtands upon *Areas* in the *Middle* of *every ten Inches*, is 324.2 *Gallons*, which *reduced* into *Barrels* of 34 *Gallons*, each are 9 B. 2 F. 1.2 G. which enter as you ſee in the following Table; whoſe Numbers ſignify *Barrels*, *Firkins* and *Gallons*.

First Area.

1. Then take the *firſt Area* 6.23, and ſubtract it from 9.2 1.2 as you are directed in *Page* 14.

Then there will *remain* 9 1 3.47, and thus continue *ſubtracting* 6.23 'till the *Tun* be 10 *Inches dry*, when the *Content* will be 7 B. 2 F. 6.90 G.

Second Area.

2. Take the *ſecond Area* 5.89 *Gallons dry*, and *ſubtract* it 'till the *Tun* is 20 *Inches dry*, when the *Remainder* will be 5 B. 3 F. 7.80 G.

Third Area.

3. Take the *third Area* 5.56, which *ſubtract* as before, till the *Tun* is 30 *Inches dry*, and the *Remainder* will then be 4 B. 3 F. 3.2 G.

Fourth Area.

4. Take the *fourth Area* 5.22, and *ſubtract* it as before, till the *Tun* is 40 *Inches dry*, and the *Remainder* will be 2 B. 3 F. 2 G.

Fifth Area.

5. Take the *fifth Area* 4.91, and *ſubtract* it as before, till the *Tun* is 50 *Inches dry*; and the *Remainder* will be 1 B. 1 F. 3.9 G.

Sixth Area.

6. Take the *ſixth Area* (or *Drip*) 4.61, and *ſubtract* it as before, 'till the *Tun* is 60 *Inches dry*; and then there will *remain nothing*.

A more exact Method.

By this Way of *Inching* you will have the *Content* of the *Tun* at *every Inch* from the *Top* (See *the Operation.*) But if you would be more exact take an *Area* at *every Inch deep*, and that will be perfectly true; for the *Sum* of them will be the *true Content*.

Operation.

Inches.	B. F. G.	Inches.	B. F. G.	Inches.	B. F. G.	Inches.	B. F. G.	Inches.	B. F. G.	Inches.	B. F. G.
0	9 2 1.2	10	7 2 6.90	20	5 3 7.5	30	4 1 2.90	40	2 3 1.70	50	1 1 3.60
	Add 8.5		*Area* — 5.89		*Area* — 5.56		*Add* 8.5		*Add* 8.5		*Add* 8.5
	9 2 9.7	11	7 2 1.01	21	5 3 1.94		4 1 11.40		2 3 10.20		1 1 12.10
	Area — 6.23		*Add* 8.5		*Add* 8.5		*Area* — 5.22		*Area* — 4.91		*Area* — 4.61
1	9 1 3.47		7 2 9.51		5 3 10.44	31	4 0 6.18	41	2 2 5.29	51	1 0 7.49
	Add 8.5		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		*Area* — 4.61
	9 1 11.97	12	7 1 3.62	22	5 2 4.88	32	4 0 0.96	42	2 2 0.38	52	1 0 2.88
	Area — 6.23		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Add* 8.5
2	9 0 5.74		7 1 12.12		5 2 13.38		4 0 9.46		2 2 8.88		1 0 11.38
	Add 8.5.		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		*Area* — 4.61
	9 0 14.24	13	7 0 6.23	23	5 1 7.82	33	3 3 4.24	43	2 1 3.97	53	0 3 6.77
	Area — 6.23		*Area* — 5.89		*Area* — 5.56		*Add* 8.5		*Add* 8.5		*Area* — 4.61
3	8 3 8.01	14	7 0 0.34	24	5 1 2.26		3 3 12.74		2 1 12.47	54	0 3 2.16
	Area — 6.23		*Add* 8.5		*Add* 8.5		*Area* — 5.22		*Area* — 4.91		*Add* 8.5
4	8 3 1.78		7 0 8.84		5 1 10.76	34	3 2 7.52	44	2 0 7.56		0 3 10.66
	Add 8.5		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		*Area* — 4.61
	8 3 10.28	15	6 3 2.95	25	5 0 5.20	35	3 2 2.30	45	2 0 2.65	55	0 2 6.06
	Area — 6.23		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Area* — 4.61
5	8 2 4.05		6 3 11.45		5 0 13.70		3 2 10.80		2 0 11.15	56	0 2 1.44
	Add 8.5		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		*Add* 8.5
	8 2 12.55	16	6 2 5.56	26	4 3 8.14	36	3 1 5.58	46	1 3 6.24		0 2 9.94
	Area — 6.23		*Add* 8.5		*Area* — 5.56		*Area* — 5.52		*Area* — 4.21		*Area* — 4.61
6	8 1 6.32		6 2 14.06	27	4 3 2.58	37	3 1 0.36	47	1 3 1.33	57	0 1 5.33
	Area — 6.23		*Area* — 5.89		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Area* — 4.61
7	8 1 0.09	17	6 1 8.17		4 3 11.08		3 1 8.86		1 3 9.83	58	0 1 0.72
	Add 8.5.		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		*Add* 8.5
	8 1 8.59	18	6 1 2.28	28	4 2 5.52	38	3 0 3.64	48	1 2 4.92		0 1 9.22
	Area — 6.23		*Add* 8.5		*Add* 8.5		*Add* 8.5		*Area* — 4.91		*Area* — 4.61
8	8 0 2.36		6 1 10.78		4 2 14.02		3 0 12.14	49	1 2 0.01	59	4.61
	Add 8.5		*Area* — 5.89		*Area* — 5.56		*Area* — 5.22		*Add* 8.5		The *Drip* 4.61
	8 0 10.86	19	6 0 4.89	29	4 1 8.46	39	2 3 6.92		1 2 8.51	60	0 0 0.
	Area — 6.23		*Add* 8.5		*Area* — 5.56		*Area* — 5.22		*Area* — 4.91		
9	7 3 4.63		6 0 13.39	30	4 1 2.90	40	2 3 1.70	50	1 1 3.60		
	Add 8.5		*Area* — 5.89								
	7 3 13.13	20	5 3 7.50								
	Area — 6.23										
10	7 2 6.90										

Note, 8.5 is *added* becauſe *Subtraction* otherways could not be made.

	Inches.	Bar.	Firk.	Gall.
The Whole Depth — — —	60 :	: 9 :	2 :	1.2
The Drip — — — — —	01 :	: 0 :	0 :	4.61

2. To find the *Drip* or *Fall* of a *Tun*.

Of the Drip of a Tun.

See *Plate* IV. *Fig.* 9.

Definition. The *Drip* or *Fall* of a *Tun*, is when it is ſet *a little ſloping* on *one Side*, for Conveniency of cleanſing; ſo that when the *Bottom* is juſt *covered* at D, the *other Side* E C is 15.57 *Inches*; draw the Line E F *parallel* to the *Bottom* C D; and then 'tis plain, that when the *Tun* ſtands in this *oblique Poſition*, the Quantity of Wort *equal to* C D E is *not* Half of C D F E, becauſe the Tun ſtands upon its *leſſer* Baſe: But if it had ſtood upon its *greater* Baſe, the Quantity would have been *more* than Half C D F E. And if the Tun had been a *Cylinder*, the *two* Quantities, *viz.* C D E and D E F would be *exactly* equal.

Definition.

Now if we find *the Content* of the Part A B G A, and *ſubtract* it from the Tun's *Content*, we ſhall have the Quantity of Liquor that will fill up the Tun to B. So that the Liquor's *Surface* will then be repreſented by the Line G B.

To find the *ſlant Height* of any *open Tun*, this is

The ſlant Height

The RULE.

The Rule.

To the Square *of the* Depth, add *the* Square *of* half *the* Difference *of the* two Diameters, *and the* Square Root *of that* Sum *is the* ſlant Height. *By which I find* A D = B C = 60.13, *and* E C = 15.57 *Inches*.

The Sides of Equilateral Triangles are proportional.

And as it is ſhewn in Page 126, *I find the* Diameter G H *to be* 45.5, *and* F E 42.1.

Note, If the Veſſel is *empty*, and you would find the Point G, that is, where the *Surface* of the *Liquor* would cut, if it were *filled up* to B; it may be done by the Help of a *Quadrant*, ſuch as I have deſcribed in my *Mechanick Dialling*, *Page* 11; for looking thro' the *Sight* at B, and the *Thread* falling at the *Beginning* of the *firſt Degree* in the *Limb*, your Sight will then be directed to the *Point* G, where you may make a *Mark* with Chalk: Meaſure the Diſtance A G with your *Gauging Cane*, which I ſuppoſe to be 17.5; then find A L, and it will always hold:

$$\text{As } \left\{\begin{matrix} \text{AD} \\ 60.13 \end{matrix}\right\} \textit{ is to } \left\{\begin{matrix} \text{IK} \\ 60 \end{matrix}\right\} \textit{ ſo is } \left\{\begin{matrix} \text{AG} \\ 17.5 \end{matrix}\right\} \textit{ to } \left\{\begin{matrix} \text{AL} \\ 17.46 \end{matrix}\right\}$$

Now, to find what the Part A B G A will hold, this is

The RULE.

The Rule.

To the Square *of the* top Diameter A B 48, add one half *of the* Rectangle, *or* Product *of the* top *and* bottom Diameters; multiply *the* Sum *by the* Depth A L, *and* divide *the* Product *by* 1077.15 *for* Ale, *and by* 882.354 *for* Wine.

See the *Work*.

e Operation. ABq=2304. AB 48 x GH 45.5=2184; its $\frac{1}{2}$=1092+2304
=3396 x AL 17.46 =58294.16

1077.15=54.12 *Ale Gallons.*

Tun's Content=324.2 A.G.
Subtract the Part ABGA = 54.12

Remains GBCDG=270.08

To find what F E D *will hold.*

Operation.

The Operation.

FE=42.1
42.1

421
842
1684

Square 1772.41
Add — 842.

2614.41
Depth = 15.53

784323
1307205
1307205
261441

1077.15) 40601.7873 (37.69 Ale Gallons.
323145...

828728
754005

747237
646290

1009473
969435

40038

FE=42.1
DC= 40

1684.0
Half=842

Lastly,

Laſtly, To find how much Liquor will *cover* the *Bottom*, viz. the Part D E C.

Operation.

The Operation.

D C = 40	F E = 42.1
× 40	D C = × 40
Square 1600	1684.0
Add 842	Half = 842
Sum 2442	
Depth 15.53	
7326	
12210	
12210	
2442	
1077.15) 37924.2600 (35.207	
323145	
560976	
538575	
224010	
215430	
858000	
754005	
103995	
F E D = 37.69 } *Ale Gallons.*	
D E C = 35.21 }	
D E F C = 72.90	

3. To gauge a *Maſh-Tun* *.

To gauge Maſh-Tuns.

See *Plate* IV. *Fig.* 2.

Definition. *Maſh-Tuns* are generally *Fruſtums of Cones, ſtanding* ſometimes on the *greater*, and ſometimes on the *leſſer Baſe*; and therefore the *Diameters* are taken with your *Sliding Rule*, (if

Definition.

* I have known many Country People to uſe one and the ſame Tun both for Maſhing, and alſo for Working their Ale; for which Reaſon I ſhall make uſe of *Fig.* 2, *Plate* IV.

(if 'tis long enough,) by *pinning* one End thereof *faſt*, and *drawing out* the *other Slider*, it will ſhew you the *Diameter* in *Inches* and *Decimal Parts*, if leſs than 36 *Inches:* But if your *Tun* be larger than 36 *Inches*, you muſt uſe your *Sliding Cane*, and take the *Diameters* in the *Middle* of every 10 *Inches* from the *Bottom upwards*, which will be exact enough for this Purpoſe, and inſert them in your *Dimenſion-Book:* But before the *Areas* can be fixed, the *Diameter* ſo taken muſt be had in *Gallons*, *Corn-Meaſure*; and becauſe 2150.4 *ſquare Inches* are contained in *one Buſhel*, and 2738 is a *Diviſor* for a *circular Buſhel*; and becauſe 8 *Gallons* make 1 *Buſhel*, take $\frac{1}{8}$ of 2150.4, which is 268.8, its *ſquare Root* is 16.4 *ferè*, which is a *Gauge Point* for *ſquare* Maſh Tuns; *alſo* $\frac{1}{8}$ of 2738 is 342.25, its *ſquare Root* is 18.5, which is a *Gauge Point* for *round Maſh-Tuns*.

Obſervation. But it being found by Experience, that after *two* or *three ſeveral* ſorts of *Worts* have paſſed thro' the *Malt*, it is more compact by an *eighth Part*; therefore take $\frac{1}{8}$ Part of 268.8, and it is 33.6, which *ſubtract* from 268.8, and it leaves 235.2, whoſe *ſquare Root* is 15.3, which is a *Gauge Point* for *ſquare Maſh-Tuns*. Alſo $\frac{1}{8}$ of 342.25 is 42.78, which taken from 342.25 leaves 299.47, and its *ſquare Root* is 17.3 the *Gauge Point* for *circular Maſh-Tuns*. By the Work above I have found,

		Diviſors.	*Gauge Points.*
For a	*Square* Maſh-Tun	235.2	15.3
	Circular Maſh-Tun	299.47	17.3

So that if you *ſquare* the *Diameters*, and divide by 299.47, the *Quotient* will be the *Area* in *Gallons*; which *divided* by 8, give the Buſhels of Malt *brewed*.

An Example. *Example.* Let the *Diameter* of the *Tun* above mentioned be as is there expreſſed; How many Buſhels of *Malt* (Goods) doth it contain?

Operation by the *Sliding Rule*.

By the Sliding Rule.

	D		C		D		C	
As	17.3	*is to*	1	*ſo is*	47.3	*to*	7.4	*Areas.*
	17.3		1		46.		7.1	
	17.3		1		44.7		6.7	
	17.3		1		43.3		6.3	
	17.3		1		42.0		5.9	
	17.3		1		40.7		5.55	
	Gauge Point.		*Unity.*		*Diameter.*			

Diviſor 8) *Sum* 389.5 (48.7 *Buſh.* nearly.

A Note. *Note.* In *adding* of theſe *Areas*, the *Dot* is removed *one Place* to the *right Hand*, and that multiplies by 10.

4. To

4. To *gauge* and *tabulate* a DISTILLER's *Back*, as *now* practiſed both in *London*, and the *Country*. To gauge a Back.

Plate VI. *Fig.* 4. *repreſents a* Back, *whoſe* Baſes *are* Elliptical *and* uneven, *but* alike ſituated.

How to take the Dimenſions.

Find the *Center* of the *Back* †; and in that *Center* ſtrike a *Nail* as at *w*. Then with *a Line* and a Bit of *Chalk* deſcribe a *Circle*; this done, take a Line and *find* the *Tranſverſe* (or *longeſt*) *Diameter*, by holding *the Line* from L to M, over the *Center w*, and at L and M, make a *Mark*. Then find the *Conjugate* (or *ſhorteſt*) *Diameter* as Y Z, and mark it with *Chalk*. Then take *the Depth* in that Place, where the Officer propoſes to take his Gauge, which ſuppoſe at *m*, and *the Depth* from *m* to *w* is = to 36 *Inches*; at which Place make a *Notch*. Then draw *ſtreight* Lines with *Chalk*, from M to B, from L to A, from Y to N, and from Z to O; *The Back* being thus *quartered*, proceed to take the *Diameters* thus: On the *ſtreight* Lines, make a *Mark*, in the Middle of every 6 Inches, (with your Chalk) as at A B, C D, E F, G H, I K, L M, which are the 6 *Tranſverſe* Diameters, (as the *Depth* of *the Back* is 36 *Inches*;) and for the 6 *Conjugate* Diameters, make the like Marks at N O, P Q, R S, T V, W X, Y Z: Then *take* the ſeveral *Lenghts* and *Breadths in Inches*, and enter them on a Piece *of Paper*, as *under*.

Depth In Inches.		*Length* (or Tranſverſe Diameters.)	*Breadth* (or Conjugate Diameters.)
6	—	A B=62	N O=32
6	—	C D=65	P Q=33
6	—	E F=69	R S=35
6	—	G H=72	T V=36
6	—	I K=75	W X=37
6	—	L M=79	Y Z=39

† In *Page* 83, I have taught how to find the *Center* of an *Ellipſis*, as a *Superficies*; but as the *Sides* of a *Back* prevents your drawing ſuch Lines, as are there directed; you muſt, with a Line, find the *longeſt* or *Tranſverſe* Diameter, and with a Bit of *Chalk* make a Mark at each End of it, as at L and M; then extend a *chalked* Line from L to M, and *ſtrike* it as Carpenters do on their Timber to ſaw ſtreight by; Having thus ſettled your *Tranſverſe* Diameter; to obtain the *Conjugate* Diameter and *Center* proceed thus: Find *the Middle* of the Line L M, (which is at *w*,) and from the *Point w*, with a T *ſquare*, draw a Line to the *right Hand*, and another to the *left Hand*, at *right Angles* with the Line L M; then extend a *chalked* Line to *each Side* of the Back *exactly over* the Lines made by the T *ſquare*, and *ſtrike it*, and you have obtained *the Center*, and alſo *quartered* the Bottom of the Back.

To find the *Drip*.

Then to find the *Drip* of the *Back:* Take a *regular* Veſſel, and fill it with Water, and continue pouring in Water 'till you have *juſt covered* the *Bottom* of the *Back*; then with your Rule, dip it, to know how much *it wets*; which ſuppoſe to be 1.5 *Inch*, and that the Quantity of Water poured in to cover the *Bottom*, is juſt 16 *Gallons*.

To find the Areas of the ſeveral Diameters.

Now to find the *Areas* of the ſeveral *Diameters: Multiply* the *Diameters* 62 and 32, and that *Product divided* by 294, (the cubical Inches in a Wine Gallon) *the Quotient* will be the *Area* = to 6.74 *Gallons*, which multiply by 6, that Product will be 40.44 *Gallons* = to *the Content* of the *firſt* 6 Inches. By this Method the other 5 *Areas* are found: But you muſt obſerve as the *Drip* of the Back is found to be 1.5 *Inch* it muſt be *ſubtracted* from the *whole Depth* 36 *Inches*, and the *Remainder* will be 34.5 *Inches:* See the whole Work, and under.

Inches.		*Longeſt* Diameter *Inches.*		*Shorteſt* Diameter *Inches.*		*Mean Area* in Wine *Gallons.*		*Inches.*		*Content* of the ſeveral *Depths* in *Wine Gallons.*
6	—	62	—	32	—	6.74	x	6	is	40.44
6	—	65	—	33	—	7.29	x	6	is	43.74
6	—	69	—	35	—	8.21	x	6	is	49.26
6	—	72	—	36	—	8.81	x	6	is	52.86
6	—	75	—	37	—	9.43	x	6	is	56.58
4.5	—	79	—	39	—	10.47	x	4.5	is	47.11
1.5	The *Drip*	—	—	—	—	—			is	16.00
36	The *Whole Depth.*								The *Content* is	305.99

By this Work it appears, that the Back contains 305.99 *Gallons*, and that the laſt *mean Area* 10.47 *Gallons* is *multiplied* by 4.5, becauſe the *Depth* of *the Drip* is *ſubtracted* from the *laſt* 6 *Inches*.

To tabulate the Back.

To *tabulate* the *Back:* Set down the *Content* 305.99 *Gallons*, and *ſubtract* the *ſeveral mean Areas*, as often as you *multiplied* them, and the *ſeveral Remainders* will give you *the Contents* of the Back at any *dry Inch*, from *Top* to *Bottom:* But to prove the Truth of the Work, *ſubtract* the *ſeveral Contents* of the *ſeveral Depths* from the *Content* of the Back, and it verifies your Work at every 6 Inches, and likewiſe at the *laſt* 4.5 *Inches*, with the Content of the *Drip*, as under.

The Operation.

Gallons.	
305.99	*Content* of the Back.
40.44	*Content* of the *firſt* 6 Inches.
265.55	What the Back holds at 6 Inches *dry.*
43.74	*Content* of the *ſecond* 6 Inches.
221.81	

Gallons.

Gallons.	
221.81	What the Back holds at 12 Inches *dry*.
49.26	*Content* of the *third* 6 Inches.
172.55	What the Back holds at 18 Inches *dry*.
52.86	*Content* of the *fourth* 6 Inches.
119.69	What the Back holds at 24 Inches *dry*.
56.58	*Content* of the *fifth* 6 Inches.
63.11	What the Back holds at 30 Inches *dry*.
47.11	*Content* of the *laſt* 4.5 Inches.
16.00	
16.00	The *Content* of the *Drip*.
00	

In the following *Table* compare the *Subtraction* at every *ſix* Inches, which is done by putting the *mean Areas* on a Piece of Paper, which (for the *firſt* 6 Inches) is 6.74, and at *ſix* Inches *dry*, there will remain 265.55 as above; then proceed with the other ſeveral *mean Areas*, and your Table for *this* Back will ſtand as follows:

Inch.	*Gallons.*	*In.*	*Gallons.*	*In.*	*Gallons.*	*In.*	*Gallons.*	*In.*	*Gallons.*	*Inch.*	*Gall.*
Full	305.99										
1	299.25	7	258.26	13	213.60	19	163.74	25	110.26	31	52.64
2	292.51	8	250.97	14	205.39	20	154.93	26	100.83	32	42.17
3	285.77	9	243.68	15	197.18	21	156.12	27	91.40	33	31.70
4	279.03	10	236.39	16	188.97	22	147.31	28	81.97	34	21.23
5	272.29	11	229.10	17	180.76	23	138.50	29	72.54	34.5	16.
6	265.55	12	221.81	18	172.55	24	119.69	30	63.11	36	00
Area	6.74	*Area*	7.29	*Area*	8.21	*Area*	8.81	*Area*	9.43	*Area*	10.47

I have placed the ſeveral *Areas* under the Table, which are *ſubtracted* Six Times, as appears by what remains; only the *laſt Area* = to 10.47 is *ſubtracted* but *four* Times, and from *the Remainder* ſubtract *one Half* of the *Area* = to 5.23; becauſe what *Depth* remains to be *tabulated* at 30 Inches *dry*, is 4.5 *Inches*; and there remains 16 *Gallons*; which is what was put into the Back to find the *Drip*, which *ſubtract* from what the Back holds at 34.5 *dry*, and it leaves the Back OUT.

N. B. *When the above* Table *is entered in a Book (where the* Officer *caſts up what Quantity of Waſh is decreaſed,) the* Decimal Parts *of the* Gallons *may be omitted, except againſt the Word* Full.

4. *To gauge* Backs *of an* IRREGULAR Figure.

The *Gauger* will often meet with *Waſh-Backs* that are *conſiderably Larger* than the *true Ellipſis* and its *Segments*, and ſome as *Large* as the *Segment of a Circle*; it will therefore be neceſſary to purſue a *different Method*, and FIRST find the *Area of the Curve, excluſive of its Segments*; and SECONDLY find the *Areas of the Segments*, according to the Figures they repreſent, whether *a Circle* or *Parabola*, according to the Methods already laid down in this Book, at *Pages* 85 and 88.

In order to find the *Area of the Curve, excluſive of the Segments*, we muſt uſe the following

THEOREM.

As one Fourth *of the* Area *of any* regular Ellipſis, *leſs* half *the* Area of the Segment, *is to the* Sum *of any* Number *of* equidiſtant Ordinates *rightly applied, multiplied into the* Diſtance *of the* Firſt *and* Laſt Ordinates; *ſo is* Unity *or* One *to the* Sum *of its like* Number *of* equidiſtant Ordinates *rightly applied, multiplied into the* Diſtance *of their* extream Ordinates.

By this THEOREM *general Diviſors* for any *Number* of *equidiſtant Ordinates* in any *Curve, excluſive of the Segment*, may be readily found. Thus 1.95065 will be the *general Diviſor* for *two Ordinates*, 2.92232 for *three Ordinates*, 3.90128 for *four Ordinates*, 4.88472 for *five Ordinates*, 5.87114 for *ſix Ordinates*, 6.85974 for *ſeven Ordinates*, 7.84993 for *eight Ordinates*, 8.84148 for *nine Ordinates*, and 9.83403 for *ten Ordinates*.

Being provided with *general Diviſors*, the *Area* of the *Curve*, excluſive of the Segment, will be found by the following

RULE.

Multiply the *Sum* of the *Lengths* of *all* the *Ordinates*, by the *Diſtance* between the *Conjugate Diameter* and the *laſt Ordinate*, and divide the *Product* by the *general Diviſor* correſponding with the *Number* of *Ordinates*, and the *Quotient* will be the *Area* of the *Curve* required.

Example. Let *Figure* 24, *Plate* I. repreſent an *Elliptical Waſh-Back*, whoſe *Segments* are thoſe of a *Circle*, the whole *Depth*, *n o*, 60 Inches, and the *Lengths* of the *ſeveral Ordinates* at *equal Diſtances* taken as follows; I demand the *ſeveral Areas* in Beer and Wine Gallons, and likewiſe the whole Content?

Top Dimenſions.	*Middle Dimenſions.*	*Bottom Dimenſions.*
Tranſverſe A A = 46	Tranſverſe B B = 48	Tranſverſe C C = 50
Conjugate *a a* = 20.3	Conjugate *b b* = 22.4	Conjugate *c c* = 24
Common Diſt. = 4.6	Common Diſt. = 4.8	Common Diſt. = 5.0
Ordinates. 12.8	*Ordinates.* 13.8	*Ordinates.* 15.2
16.0	17.5	19.2
18.4	20.3	21.8
19.7	22.0	23.4
20.3	22.4	24.0
20.3	22.4	24.0
19.7	21.8	23.4
18.3	20.2	21.7
16.2	17.6	18.7
12.3	14.0	14.8
Sum 174.3	Sum 192.0	Sum 206.2

For

For the TOP *Area.*

Top Area. Then 174.3 *multiplied* by 18.4, the *Diſtance* between *n*, *n*, gives 3207.120; which *divided* by 4.88472, the *common Diviſor* for *five Ordinates*, quotes 656.56, the *Area* of the *Curve* in Inches, *excluſive of the Segments*. And the *Area* of *Segment* A *l*, will (by the Method laid down for finding the *Area* of the *Segment of a Circle*, *Page* 85) be found to be 43.04 Inches, and the *Area* of the *Segment* A *n* 42.48 Inches: Which Areas *added* to the *Area of the Curve* found above, gives 742.08, the whole Area in Inches. And that *divided* by 282, and 231, quotes 2.63 *Beer Gallons*, and 3.21 *Wine Gallons*.

For the MIDDLE *Area.*

Middle Area. *Multiply* 192.0, by 19.2, the *Diſtance d*, *d*, the *Product* is 3686.4, which *divided* by 4.88472, quotes 754.68, the *Area of the Curve*, *excluſive of the Segments*; and the Area of theſe found as before will be 48.75, and 48.16, which *added* to the *Area of the Curve*, gives 851.59, the *whole Area* in Inches. Then *dividing* by 282, and 231, we have 3.02 *Beer Gallons*, and 3.68 *Wine Gallons*.

For the BOTTOM *Area.*

Bottom Area. *Multiply* 206.2, by 20, the *Diſtance k*, *k*, the *Product* is 4124, which *divided* by 4.88472, quotes 844.26, the *Area of the Curve*. And the Area of the Segments, found as before, will be 54.81, and 53.59, which added to the *Area of the Curve*, gives 952.66, the *whole Area* in Inches. And being *divided* by 282, and 231, quotes 3.378 *Beer Gallons*, and 4.124 *Wine Gallons*.

Suppoſe the *Drip* or *Fall* to be 1.2 *Inches*, or 4 *Gallons*; then the *whole Depth* of the *Back* excluſive of the *Drip*, will be 58.8. Then make 3.21 Gallons, the *Area* at the Top, to be the *common Area* for the *firſt* 20 Inches; 3.68 Gallons the *common Area* for the *next* 20 *Inches*, and 4.124, the *common Area* for the *remaining* 18.8 *Inches*.

Then the Content *will be* found *as follows:*

3.21, the *Top* Area, *multiplied* by 20,	gives ——	64.20	
3.68, the *Middle* Area, *multiplied* by 20,	gives ——	73.60	
4.124, the *Bottom* Area, *multiplied* by 18.8,	gives ——	77.5312	
Net *Depth* 58.8,	*Content*	215.3312	
To which *add* the *Drip* 1.2,	——	4	
Whole *Depth* 60.0, and *Cont.*		219.3312	

The *Area* of the *Back* at *every Inch* may be found as in the *preceding Example*; for 3.21 Gallons being an *Area common to all the* FIRST 20 *Inches*, you are to *ſubtract* it continually from the whole Content of the Tun, and the *remainder* will be the *Content* at *each of the* 20 *Inches*; and then for the NEXT 20 *Inches*, you muſt take 3.68 *Gallons*, ſubtracting it as before; and for the REMAINING 18.8 *Inches*, you muſt take 4.124, and proceed in the ſame manner; by which means a *Table of the Content of the Back*, *at every Inch* may be readily conſtructed.

6. To

6. To gauge a *Back* or *Cooler* *.

See *Plate* IV. *Fig.* 8.

Definition. *Definition.* A *Back*, or *Cooler*, is *ſquare* or *oblong*, made of Wood, *&c.* about 6, 8, or 10 Inches *deep*, into which the boiling Wort is let out of the Copper, for more Expedition in *cooling*; Common Brewers have under Backs, that is, one under another.

Moſt *Backs* have their *Sides ſtreight*; and in caſe the *Sides* be not *ſtreight*, but make either an *obtuſe* or *acute Angle* with the *Bottom*, you muſt then be careful to take the *true Length* and *Breadth* in the *Middle* of *every Inch* in *Depth*, from whence the *Area* may be found upon every *Tenth*.

For finding the *Area* of the *Back*, obſerve

The RULE.

The Rule. Multiply *the* Length *by the* Breadth, *and* divide *by* 282, *this gives the* Contents *in* Ale Gallons.

An Example. *Example.* Let the *Length* A B be 120, and B C 86 *Inches*, What's the *Area* in *Ale Gallons?*

Operation. *Operation.*

A B = 120
B C = 86

720
960

282) 10320.00 (36.59 *Ale* Gallons.

A Note. When *Brewers Worts* have lain ſome time in the *Cooler*, they have a conſiderable *Settling*, for which it is uſual to allow *one tenth Part*; which muſt be taken from the *Area* before it is *tabulated.*

By

* I would adviſe every *Superviſor* and *Officer*, when they firſt come into a *new Diſtrict* or *Diviſion*, to try an Experiment of ſeveral of their Victuallers, by gauging of the Malt *before* 'tis *wet*, and alſo by gauging the Goods *when brew'd*; by this 'tis probable they may come nearer the Truth, than by always keeping to the *Diviſors* and *Gauge Points* above preſcribed. For I have Reaſon to think, that different Malt, different Water, and People's different Management, will make ſome Alteration in the Rule above given.

By the *Sliding Rule*. By the Sliding Rule.

A B A B
As 282 *is to* 120, *ſo is* 86 *to* 36.6 the *Area* in *Ale Gallons*.
Diviſor. *Length*. *Breadth*.

Take *one Tenth* of the *Area*, and *reduce* it into *Barrels*, *Firkins*, &c. = B. F. G. 0 0 3.659, which *add continually*, gives what the *Back* holds upon *every Tenth of the firſt Inch deep*; as in this *Table*; where the *Area* anſwering *one Inch deep* is B. F. G. 1 0 2.59 1/10 = to 36.59 as found above; and thus you may proceed for the *next Inch* deep, and ſo on for the *whole depth* = AE 9.5 *Inches*, which *multiplied* by the *Area* 36.59, *produceth* 347.605 *Ale Gallons*, the *whole Content* of the *Back*, if it were placed *parallel to the Horizon*.

Depth.	*Bar*.	*Fir*.	*Gall*.
.1	0	0	3.659
.2	0	0	7.318
.3	0	1	2.477
.4	0	1	6.136
.5	0	2	1.295
.6	0	2	4.954
.7	0	3	0.113
.8	0	3	3.772
.9	0	3	7.431
1.0	1	0	2.590

Note, The *whole Content* may be found by the *Sliding Rule*, as in *Page* 93. A Note.

7. To find the *true Dip* of the *Backs*.

Becauſe *Backs* are not placed *level* but *ſloping*, for Convenience of *drawing off the Wort*; therefore if you ſhould *dip* in *too deep a Place*, you would wrong the *Subject*; and if in *too ſhallow a Place*, you would wrong the *King*; to remedy which, take as many *Dips* as you think convenient, and *add* them all *together*, and *divide* them by the *Number of Dips*, which will give a *mean Depth*; when this is done, you muſt make Trial in many Places of the *Back*, till you find a *Dip* that anſwers your *mean Depth*; as ſuppoſe at D, right againſt it on the Side of the *Back* make a *Mark*, or *Notch* with a *Knife*, and let that be your *conſtant true dipping Place*. Of the Dip of the Backs.

Depths.
2.7
3.1
3.4
2.8
3.2
3.3
3.0
2.6
2.5
2.9

Example. Suppoſe I take as many *Dips* as *per* the Figure on *Plate* IV. *Fig*. 8. and *add them together*, they will ſtand as in the *Margin*. The *Sum* of theſe *ten Dips* is 29.5, which *divided* by 10, *quotes* 2.95 for a *mean true Depth*. An Example.

10) 29.5 (2.95

☞ The Officer ought to be very careful in aſcertaining the *true Dipping Place* of a Back, for by reaſon of the *Largeneſs* of their *Areas*, a *little Error* in the *Depth* will make a conſiderable Error in the *Content*; for which reaſon, they ought not only to be

be *inched*, but alſo their Contents found to every Tenth of an Inch, which is called *Tenthing* of a Back.

The *Bottoms* of common Brewers *large Backs* do generally *warp* after they have been a little time uſed, and become more and more *uneven* as they grow older, eſpecially ſuch as are not every where well and equally ſupported: many of them are ſo large and uneven, that 'tis hardly poſſible to find a true *Medium* of the Depth of the *Wort*, without taking a very great *Number* of *Depths*: beſides, ſome are ſo ſituate, that it is difficult to take Depths in every Part where it may be neceſſary, and therefore it is a common Practice to take *one Depth* at a Place in the Back (cloſe to the Side) which may be always moſt conveniently come at; then ſee all the Wort let down into a Tun, in which it may be exactly gauged, and (if the Dip taken in the Back doth not happen to be a *mean one*) mark on the Side of the Back ſuch *Addition* or *Abatement* as will make the Gauge of the Wort *in the Back*, equal to the Gauge of the Wort *in the Tun*, which is called *ſetting a Back*, by ſeeing the Wort come down; and this is frequently done, becauſe moſt large Backs are continually *ſetting* more one way than another. Thus, for Inſtance, ſuppoſe the *Dipping Place* be found *to dip .6 too much*, then whenever any one *dips* at this Place .6 muſt conſequently be *ſubtracted* from the *Dip*: And *this* as a *Memorandum* is to be put under the *Dipping Place* in this Manner —0.6: But if the ſame was to be *added*, it muſt be marked thus +0.6. Beſides, the Dimenſions of large Backs (for want of proper Inſtruments) are generally taken with *inched Tapes*, which are ſeldom very exactly divided, and the Alteration of the Weather affects them in their *Lengths*, and a very ſmall Error in *the Dimenſions* of ſuch a large Veſſel, cauſes a conſiderable one in the *Area*: But by *ſetting the Back* as above, there will be a Compenſation *in the Depth* for any Error that may happen in taking *the other Dimenſions*.

8. To gauge a *Copper* with a *Riſing Crown*.

See *Plate* IV. *Fig.* 6.

Of Coppers with Riſing Crowns.

In *London* the *common Brewers* Coppers are all made with *riſing Crowns*, which they tell you are made ſo, that the Liquor and Wort may boil the ſooner.

How to take the Dimenſions.

How to take the Dimenſions.

1. Try if the Copper be *perfectly round*; then let two Aſſiſtants hold a Packthread *right over the Middle* from A to C, and take the *Diameter* A C, which I ſuppoſe to be 61 Inches.

2. *Hang one Plumb Line* at *m*, and another at *n*, take the *Depths m* F and *n* G each = 51 *Inches*.

3. Take the *Diſtance* A *m* = *n* C = 10.25, *whoſe Sum* 20.5 *taken from* A C = 61, there *reſts* F G = 40.5, the *Diameter* of the *Crown*.

4. Now

4. Now to find the *Content* of the *Copper from the Crown upwards*, *viz.* the *Part* ACDE, the *Depth* BH being 39 *Inches*, find a *Diameter* in the *Middle of every* 4 *Inches*, (for the more the better where the *Copper* is large,) and place them with their *Areas* as in the *following* To find the Content.

TABLE. A Table.

Parts of the Depth.	Diameters.	Area Ale Gallons	Content of every 4 Inches. B.	F.	G.
3	61.5	10.53	0	3	6.09
4	62.5	10.88	1	1	1.02
4	62.0	10.71	1	1	0.34
4	61.5	10.53	1	0	8.12
4	60.5	10.19	1	0	6.76
4	59.5	9.86	1	0	5.44
4	58.5	9.53	1	0	4.12
4	56.5	8.89	1	0	1.56
4	54.5	8.27	0	3	7.58
4	52.5	7.68	0	3	5.22
39	Sum		11	0	3.75
To cover the *Crown*			1	0	2.907
Content of the Copper			12	0	6.657

How they are *added*, ſee *Page* 12.

Firſt, Place the *Parts* of the *Depth*; *next*, the *Diameters* in the *Middle of every* 4 *Inches*, *then* the *Areas* of thoſe *Diameters*; and *laſtly*, the *Contents* of every 4 *Inches*, *reduced* to *Barrels*, *Firkins*, and *Gallons*.

5. *Multiply every Area by the Depth* 4; and *reduce the Product* into *Barrels*, *Firkins*, and *Gallons*; only the *top mean Area* is taken in the *Middle of* 3 *Inches*; therefore it's *multiplied* by 3, and its *Product* reduced *as before*.

6. To find the Quantity of Liquor that *will cover the Crown*, that is, the Part FEHDGH. What Liquor will cover the Crown.

Firſt, Find what the *Fruſtum* FEDG will hold; and alſo of the *Crown* FHDGI, it being gauged as the *Segment* of a *Globe*, in *Page* 112; which *Content* being *ſubtracted* from the *Fruſtum* FEHDG, will leave *the Part* FEHDGH, that is, what will *cover the Crown*.

See *the Work*.

1. For the *Fruſtum* FEHDGF.

Operation for the Fruſtum. See *Page* 114.

ED = 49.25	ED = 49.25
FG = 40.5	FG = 40.5
24625	Differ. = 8.75
19700	× 8.75
1994.625	4375
× 3	6125
5983.875	7000
Add 76.5625	76.5625
6060.4375	
× 12	

1077.15) 72725.25000 (67.525 *Ale Gallons.*

See *Page* 112.

2. For the *Segment* of the *Globe* FHGI.

Operation.

Operation for the Segment of the Globe.

HI = 12	HI = 12	IG = 20.25
× 3	12	× 20.25
Triple of HI = 36	144	10125
	12	4050
		4050
Cube of HI = 1728		410.0625
		× 36
		24603750
		12301875
		14762.2500
	Cube of HI *add*	1728.

538.575) 16490.25000 (30.618 A G.

From FEHDGIF = 67.525
Subtract FHI = 30.618

Remains FEHDGH = 36.907 which will *cover the Crown.*

The

The *Copper* may be *inched* by the *ſame Method* as *inching* the *Tun* in *Page* 127.

Note. The Quantity of Liquor that *will cover the Crown,* may be found by *this* Another Way.

RULE.

From the Area *of the* Plane *at the* Top *of the* Crown, *ſubtract* 1 $\frac{1}{3}$ *of the* Area *of the* Crown's Height, *the* Remainder *being* multiplied *into* half the Height of the Crown, *will* produce *the* Quantity *or* Number *of* Gallons *that* will cover the Crown. *Ward's* Mathemat. *Page* 443.

So E D = 49.25 Area 6.75, and the Area of H I 12 = .4011, 1 $\frac{1}{3}$ of which is .5348, *ſubtract* from 6.75, *reſts* 6.2152 x 6, that is $\frac{1}{2}$ of H I = 37.2912, differing only .384 Parts of a Gallon from what is found above.

9. To gauge a *Still.*

See *Plate* IV. *Fig.* 7.

Stills are generally made with *riſing Crowns,* as the Coppers are and muſt be divided into ſuch Figures as (according to your Judgment) *you think* they make the neareſt Approaches to. So in the *Still* before us; the Part A L B muſt be gauged as the *Segment of a Globe*; the *middle Part* EABF, as the *middle Fruſtum of a Spheroid*; and the *lower Part* (as in the Copper) GEFH, as a *Parabolic Conoid.* Of a Still.

EXAMPLE.

An Example.

Let A B = 30. E F = 30. A G = 35. L M = 7. M I = 29.5 I K = 5.5 G H = 23. C D = 39. } *Inches.*

How many *Wine Gallons* will the *Still* hold?

1. For the *middle Fruſtum* E A B F, as the *middle Fruſtum* of a *Spheroid.* For the middle Fruſtum.

The RULE.

To twice the Square *of* C D, add once the Square of A B, multiply the Sum *by* M I, *and divide* the Product *by* 882.354, *(that is, three times* 294.118) *and the* Quotient *is the* Content *of* that Part *in* Wine Gallons. The Rule.

See the Work.

Operation.

C D = 39		A B = 30
× 39		× 30
351		*Square* 900
117		
Square = 1521		
× 2		
Double = 3042		
Square of A B *add* = 900		
3942		
M I = 29.5		
19710		
35478		
7884		

882.354) 116289.00000 (131.79 *Wine* Gallons.

2. For A L B M, as the *Segment of a Globe.*

Operation.

Operation for the Segment of a Globe.

L M = 7	L M = 7	Half A B = 15
7	3	15
49	21	75
7		15
The *Cube* 343		225
		21
		225
		450
		4725
The *Cube* L M *add* =		343

441.177) 5068.000000 (11.48 *Wine* Gallons.

3. For

3. For the Part EIFHIG, *viz.* what *will cover the Crown.* See the Rule at Bottom of *Page* 143.

See the *Work.*

Operation for the Crown.

EF = 30 *Area Wine Gallons* 3.05
IK 5.5 *Area* = .102 and $1\frac{1}{3}$ = —.137

Remains 2.913
Half of IK = 2.75

14565
20391
5826

will *cover the Crown* EIFHIG = 8.01075
Add ECABDF = 131.79
ALBM = 11.48

The *Content* of the *Still* = 151.c8075 *Wine Gallons.*

☞ When the *Still* is so *large*, that the *Sliding Rule* will not reach the *Diameters*, then you must take them with your *Sliding Cane*; and the exactest Way is to take a *Diameter* at *every Inch of the Depth* in *Wine Gallons*, which *added together*, give the *true Content* of the *Still.* A Note.

Note. The common Rule made use of in *London* for gauging *Stills*, was to measure the *Globical Frustum*, or Part A L B M, by this

RULE.

To twice the Square *of the Sphere Diameter*, add *the* Square *of the* End; multiply *that Sum by the* Height *of the* Frustum, *and that* Product *by* .2618, *(that is* $\frac{1}{2}$ *of* .523598 a Globe, *whose* Diameter *is* 1,) *and this* last Product *is the* Content *in* Wine *Gallons.* Then *the Body or remaining Part* A B F E, *by the* Cross Diameters *at the* Middle *of every* 6, 8, *or* 10 Inches, *from thence their* corresponding Areas *are found, will give as many* Cylinders *as there are the* Number *of* Diameters *taken*; the Sum *of which* Cylinders, added *to the* Globical Frustum above, *and also to* what covers the Crown, *the Sum of* these three *is* the Content *of the* Still *in* Inches; *which* divide by 441.177, the Divisor *for a* Globe *in* Wine Gallons, *gives* the Content. *See* Page 109. *for* the Divisor. The Rule.

Example. In *Page* 144, I have found the *Content* of the Part of the *Still* A L B M to be 11.48 *Gallons*, let us see how this Rule will answer? An Example.

The Operation.

Operation.

AB = 30
× 30
Square 900
× 2
1800
+ 900
Z = 2700
LM × 7
18900
Common Factor 2618
151200
18900
113400
37800

441.177) 4948.0200 (11.21 *Wine* Gallons.
Too little by .27 Parts of a *Gallon*.

But if you would be more exact in the Gauging of *Stills*, conſider well *Fig.* 6, 7, and 8, of *Plate* VI, which repreſent *three* Stills of *different* Forms: And carefully attend to the following Method of Gauging them; as it was practiſed by the late ingenious Mr. JOSEPH BOSLEY, who was *General* Surveyor of the *London Diſtillery*, for near *thirty* Years.

Mr. *Boſley*'s Method of Gauging Stills.

10. To gauge a *Still* more *accurately*.

See *Fig.* 6. *Plate* VI.

How to take and write down the Dimenſions.

Take a Line, or Piece of Packthread, and extend it from *one* Side of the *Collar* to the *other*; then with your Rule take the *Depth* of the Still from the *Center* of the *Crown*, or *Bottom* at Z, to the Line AB at Y, which will be 109.8 *Inches* = to the *Depth* of the Still. Then take the Line, and extend it from C to D, (keeping your Rule ſtill fixed) and look on the Rule, where the Packthread touches, and it will be at 83.5, which *ſubtract* from the *whole Depth* 109.8 *Inches*; and the *Remainder* will be 26.3 *Inches* = to O Y, the *Depth* of the *Segment* of the *Globe*. This done, take a Nail, and hold it firm at the *Point* Z; and with a *Packthread* (taking the *Nail* for the *Center*) deſcribe a *Circle*, with a Bit of Chalk held at the End of the Thread: *Quarter* the Circle, extending the Lines that *quarter* it, till they reach to the *Sides* of the Still; and from the *Ends* of thoſe Lines raiſe Lines *up* the *Sides* of the Still, as *perpendicular*

cular as the *Sides* of the Still will permit, as high as the *Segment* Line C D; and upon thoſe *raiſed* Lines, in the *Middle* of every 10 *Inches*, make a *Mark* with your *Chalk*, as at E F, G H, I K, L M, N O, P Q, R S, T V, which gives you 8 *Diameters*, (by Reaſon the *Depth* from O to Z, is 83.5 *Inches*;) ſo that 7 of the *firſt* Diameter's *Areas* are to be *multiplied* by 10, and the *laſt Area* by 13.5 *Inches*, which makes the *whole* Depth 83.5: † And when you take the Diameters, write them down as follows:

Inches.	The *Croſs Diameters* in *Inches.*	The *Croſs Diameters* in *Inches.*	*Mean Diameters* in *Inches.*	*Mean Areas* in *Wine Gallons.*	*Inches.*		*Contents* of the *ſeveral Depths* in *W. Gall.*
26.3	AB=45 / CD=134.7	(The *Collar.*) / (The *Segment* of the *Globe.*)	45. / 134.7	6.88 / 61.71		*is*	1141.42
10	E F=139.8	*e f*=140.7	140.25	66.90	x 10	*is*	669.00
10	G H=148.	*g h*=148.9	148.45	74.957	x 10	*is*	749.57
10	I K=153.5	*i k*=153.7	153.6	80.248	x 10	*is*	802.48
10	L M=155.	*l m*=155.5	155.25	81.981	x 10	*is*	819.81
10	N O=154.7	*n o*=155.6	155.15	81.875	x 10	*is*	818.75
10	P Q=153.6	*p q*=154.7	154.15	80.823	x 10	*is*	808.23
10	R S=150.1	*r s*=150.3	150.20	76.734	x 10	*is*	767.34
13.5	T V=142.5	*t u*=141.8	142.15	68.73	x 13.5	*is*	927.85
The *Altitude* of the *Crown* XX. XX. = to 12 *Inches.*	W X=134.5	*w x*=133.9	134.20	61.25	x 6	*is*	367.50
109,8 The *Depth* of the Still.				The *Content* of the Still in *Wine Gallons.*			7871.95

† The Contents of theſe *large* Stills cannot conveniently be found without getting into them, and having 2 or 3 to aſſiſt in taking their Dimenſions: And the uſual Way of raiſing the *FOUR perpendicular Lines up the Sides of the Still*, from *the Ends* of thoſe Lines that *quartered* the *Bottom* of it, is by extending a Line from A at *the Collar*, to *the Lower* XX, at *the Bottom*, of *Fig.* 6. Then let the Aſſiſtant (*without* the Still) at the *Collar*, and the other Aſſiſtant (*within* the Still) at the *Bottom*, keep that Line *exactly ſo* extended, holding it *very tight*; whilſt you (having ready a ſtreight Stick with a bit of Chalk fixt in a Slit at one End of it) draw the Line *up the Side* of the Still, from the *Lower* XX. to W. T. R. and ſo on to A; guiding the Stick by the Side of the Line, extended from A. to the *Lower* XX. as aforeſaid: And after the ſame manner you may with Eaſe draw the like Lines *up the three other Sides* of the Still, from *the Ends* of thoſe Lines that *quartered* the *Bottom* of it, with ſufficient Exactneſs. ☞ The *Bottoms* and *Sides* of the Stills *marked* 7 and 8, are to be *quartered*, *&c.* by the ſame Method.

Upon a ſtrict Examination it will be found that Stills of all Sizes are ſeldom or never made *truly Round*, more eſpecially *large* Ones: And therefore, thoſe who would gauge, or find the Contents of ſuch Stills, with Exactneſs, are neceſſitated *to quarter* them, and to take *Croſs-Diameters* to rectify this *Inaccuracy* of the Copper Smith.

N. B. Theſe *Stills* marked *Fig.* 6, 7, 8, in *Plate* VI. facing *Page* 152, are not Stills of *imaginary* Dimenſions and Contents; but are real Stills, actually worked, *in* and *near London*, at this Day, and have been ſo for ſeveral Years laſt paſt.

Of the Segment. *To find the* Content *of the* Segment *of the* Globe, A B, C D.

The Rule. To *once* the *Area* of the *Collar* A B, *add twice* the *Area* of the *Segment* C D; and *that Sum multiplied* by *one Third* of the *Depth* (Y O = to 26.3 *Inches*,) *the Product* will be 1141.42 *Gallons* = to the *Content* of the *Collar* and *Segment*. And the *Areas* are found by *squaring* the Diameters, and *dividing that* Sum by 294, (the *Cubical Inches* in a *Wine Gallon*) and the *Quotient* will be the *Areas* required.

The Operation. *Operation.*

The Collar. A B = to 45 The *Diameter* of the *Collar*.
× 45
225
180
294) 2025 (6.88 *Gallons* = to the *Area* of the *Collar*.

The Segment. C D = to 134.7 The *Segment* of the *Globe*.
× 134.7
9429
5388
4041
1347
294) 18144.09 (61.71 *Gallons* = to the *Area* of the *Segment*.

Gallons.
06.88 = to the *Area* of the *Collar*.
123.42 = to *twice* the *Area* of the *Segment*.
130.30
Multiply by 8.76 = to *one Third* of 26.3 *Inches*, the *Depth* of the *Segment*.
78180
91210
104240
1141.4280 *Gallons* = to the *Content* of the *Segment* of the *Globe*.

To

To find the Content *of the* ſeveral Diameters.

To find the *Content* of the *next* Diameter at 10 *Inches* is done by *adding* the *Diameter* E F = to 139.8 *Inches*, and *e f* = to 140.7 *Inches*; and *Half* that Sum will be 140.25 *Inches*, which is the *mean Diameter*; which *ſquared*, and that Sum *divided* by 294 (the *Circular Diviſor* for *Wine* Gallons) the *Quotient* will be 66.9 *Gallons* = to the *Area*, which *multiplied* by 10, will be 669.0 *Gallons* = to the *Content* of the *firſt* 10 *Inches*. *See* the Work itſelf. To find the Contents.

Operation.

The Operation,

Inches.
140.25 = to the *mean Diameter.*
x 140.25

70125
28050
561000
14025

294)19670.0625(66.9 *Gallons* = to the *Area* of the *Diameters*
x 10 of the *firſt* 10 Inches.

669.0 = to the Content of the *firſt* 10 *Inches.*

In the *ſame Manner* you are to find the 6 other *Diameter's Areas*, and when each *Area* is found, and *multiplied* by 10, it will be the *Content* in *Gallons*, which place as directed on *Page* 147; but, when you have found the *Area* of the Diameters T V and *t v*, you are to *multiply* the *Area* by 13.5, as appears by the *Dimenſions*, and the *Product* will be 927.85 *Gallons*, as before entered.

The Method commonly made Uſe of to find the Content of the *Crown* or *Bottom* is by covering it with Water, out of a *regular* Veſſel. But to *gauge* it, you muſt *add* together the *Diameter* W X = to 134.5 *Inches*, and *w x* = to 133.9 *Inches*, and *Half* that Sum *ſquared*, and that *Product divided* by 294 (the *cubic* Inches in a *Wine* Gallon) the *Quotient* will be the *Area*; which *multiplied* by *Half* the *Altitude* XX and XX = to 6, *that Sum* will be the *Content* of the *Bottom* or *Crown* of the Still, which is 367.50 *Gallons*. *See* the Work.

Operation.

The Operation. WX = to 134.5 *Inches.*
$w\ x$ = to 133.9

268.4

134.2 = to *Half* the *two* Diameters which is the [*Mean* Diameter.
× 134.2

2684
5368
4026
1342

294)18009.64(61.25 = to the *Area.*
× 6 = to *Half* the *Altitude* XX and XX.

367.50 = to the *Content* of the *Bottom* or *Crown* of the Still in *Wine* Gallons.

By *adding* together all these *several* Contents and Dimensions, the *Content* of the Still is found to be 7871.95 *Wine Gallons. See* the work on *Page* 147.

To find the Liquor. *To find* what Quantity *of Liquor is in the Still at* 30 *Inches* Dry *from the* Collar *A B, to the* Surface *of the Liquor.*

The RULE.

The Rule. Subtract 30 *the* Dry *Inches from the Still's* Depth = *to* 109.8 *Inches, and the* Wet *Inches* will be 79.8 *Inches.*

Operation. *Gallons.*

The Operation. The Content of the *Crown* or Bottom is —— —— 367.50

Inches.
The *first* Content from the *Crown* at 13.5 is —— 927.85
The *second* Content from the *Crown* 10.0 is —— 767.34
The *third* Content from the *Crown* 10.0 is —— 808.23
The *fourth* Content from the *Crown* 10.0 is —— 818.75
The *fifth* Content from the *Crown* 10.0 is —— 819.81
The *sixth* Content from the *Crown* 10.0 is —— 802.48
The *seventh* Content from the *Crown* 10.0 is —— 749.57

73.5

To make up the *Wet* Inches 79.8 } 06.3 is —— 421.47
I *add* —— —— —— —— —— }

= To the *Wet* Inches 79.8 Content 6483.00

By

By the above *Work*, it appears, that there is in the Still 6483.00 *Gallons* of Liquor, and the Method to find the Liquor at 6.3 *Inches*, is by *multiplying* the *Area* 66.90 *Gallons* by 6.3, and the *Product* will be 421.47 *Gallons* = to what Quantity of Liquor the Still contains at 6.3 *Inches*. *See* the Work.

Operation. The Operation.

66.90 = to the *Area*.
× 6.3 = to the *Depth*.

20070
40140

421.470 = to the *Content* at 6.3 *Inches*.

A ſecond *Way to find what* Quantity *of Liquor is in the Still, at* 30 *Inches* dry, *from the* Collar *A B, to the* Surface *of the Liquor.*

Take the *Depth* of the *Segment* (*ſee Page* 147.) which is 26.3 *Inches*, and *add* to it 3.7 *Inches*, to make the *dry* Inches 30, then look in the *ſame Page*, for what the Still will hold at 26.3 *Inches*, which you find will be 1141.42 *Gallons*; and on the *ſame Page*, look for the *mean Area* againſt the *next* 10 *Inches*, which you will find to be 66.90 *Gallons*, which *multiply* by 3.7 *Inches*, that *Product* will be 247.53 *Gallons*, which *added* to 1141.42 *Gallons*, make 1388.95 *Gallons* to fill the Still, as follow: A ſecond Way.

Inches.		*Gallons.*
26.3	= to the *Segment*, is	1141.42
3.7	= to the *dry* Inches, to make it 30, *multiplied* by 66.90, produces	247.53
30.0		*Gallons* 1388.95

So that to fill the Still at 30 *Inches dry*, will require 1388.95 *Gallons*, which *ſubtract* from 7871.95 *Gallons*, and it will appear that the Still contained 6483 *Gallons* = to the Quantity of Liquor in the Still, at 30 Inches *dry*, as found by the *other* Method above.

Note. *The* other two *Stills*, *ſee* Figures 7 and 8, *of* Plate VI. *are* gauged, *and the* Contents found, *in the ſame Manner as the Still*, Fig. 6. *that I have been explaining*; *and are inſerted to ſhew the different Forms that Stills are made in, and alſo with a View to exerciſe the Ingenuity of the* young Gauger, *in finding out their Contents.*

☞ *In* Figure 7, *the* firſt 4 Diameters, *(which are taken in the* Middle *of every* 10 Inches) E F, G H, I K, *and* L M, *are* taken, *(and their Contents* found) *as taught in Still*, Fig. 6. *But the* Diameter P Q, lying *neither* parallel *with* N O, *nor with* R S, *occaſions the* Angles N and O, *(at the* Top *of the* Bench,) *to be* acute; *and the* Angles x *and* Q, *(at the* Bottom *of the* Bench,) *to be* obtuſe. *Therefore to find a* mean Diameter *betwixt* N O, *and* x Q, *I take* Half *the Diſtance from* N *to* x, *which is at the* Point P; *and from the* Point P *to the* Point Q, *is the* mean *Diameter betwixt* N O *and* x Q. *And then I proceed to* take *the* other Diameters *(which are alſo to be taken in the* Middle *of every* 10 Inches) R S, T V, W X, Y Z, *and* a b; *and to find their* Contents; *And alſo the* Content *of the* Bottom *or* Crown, *as already directed in the Still*, Fig. 6.

N. B. If the *Still* ſhould not be a *true Ellipſis*, but an *irregular Figure*, recourſe muſt be had to the *Method* laid down on *Page* 87, which is not only accommodated to ALL *Curves* whoſe *Properties are known*, but alſo to *thoſe* whoſe *Properties are unknown:* And this is *undeniable*, becauſe it *entirely depends* on the *Ordinates themſelves*, and their *common Diſtance* from one another being given: Therefore where the *Property* of the *Curve* is *not known*, the *Ordinates* and their *common Diſtance* muſt be *determined* by *actual Menſuration.*

CHAP. XXV.

Of CASK * GAUGING.

See *Plate* IV. *Fig.* 3, 4, 5.

Of Caſk Gauging. THIS is the moſt abſtruſe Part of gauging, becauſe no one *certain* or *general* Rule can be preſcribed to find the *true Content* of *all* ſorts of Caſks, by reaſon of the Uncertainty of their *Curviture.* But before we conſider the different Forms of Caſks, it will be neceſſary to ſhew the *practical* and moſt *correct* Methods of taking their *Dimenſions.* When Caſks are *full* you can ſeldom attain *all* their *Dimenſions.* In a *ſtanding Caſk*, the *Bung Diameter* is the moſt *difficult* to be attained; and in a *lying Caſk*, the *Length.*

The RULE *for taking the* Dimenſions *of a* Caſk LYING.

For a Caſk lying. *Take the* Head-Diameter, cloſe *to its* Outſide, *and add for ſmall Caſks* 3 Tenths; *for Caſks of* thirty, forty, *or* fifty *Gallons* 4 Tenths; *for larger Caſks* 5 *or* 6 Tenths of an Inch; *and the* Sum *is very near the* Head Diameter within.

In taking the Bung-Diameter, *obſerve, by moving the Rule to and fro, whether the Staff (or Stave)* oppoſite *to the Bung, be thicker, or*

* See alſo CHAP. XX. PART II.

To fold out facing page 132.

Fig. 1
Page 82

An Ellipsis

(See Plate 2 Fig. 1)

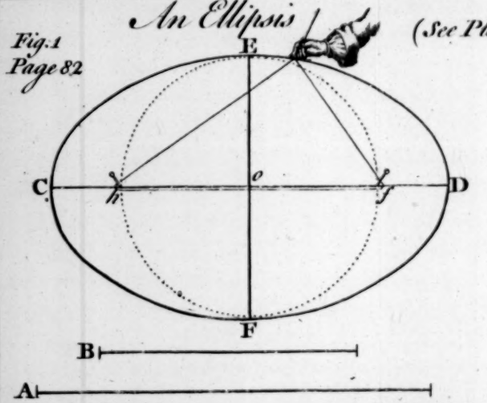


Fig. 2
Page 83

An Ellipsis

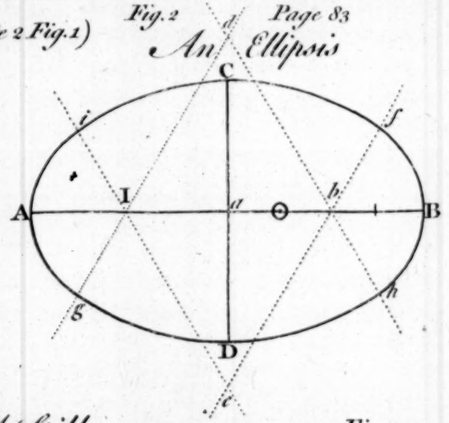


Fig. 3
Page 83

An Ellipsis

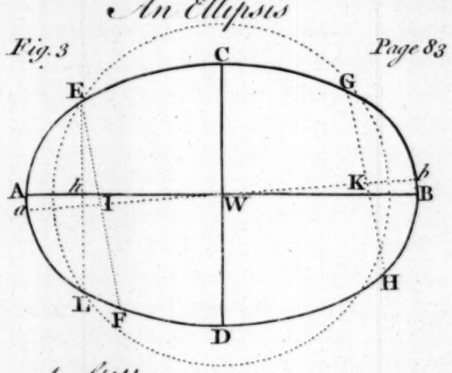


Fig. 5
Page 133

The Tee Square

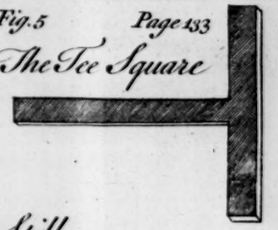


Fig. 6
Page 146

A Still

(See Plate 4 Fig. 7)

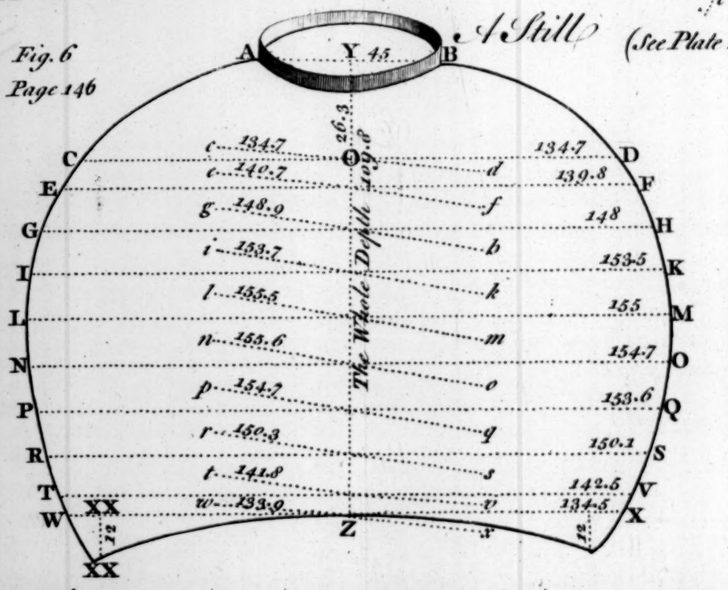


Fig. 7
Page 151

A Still

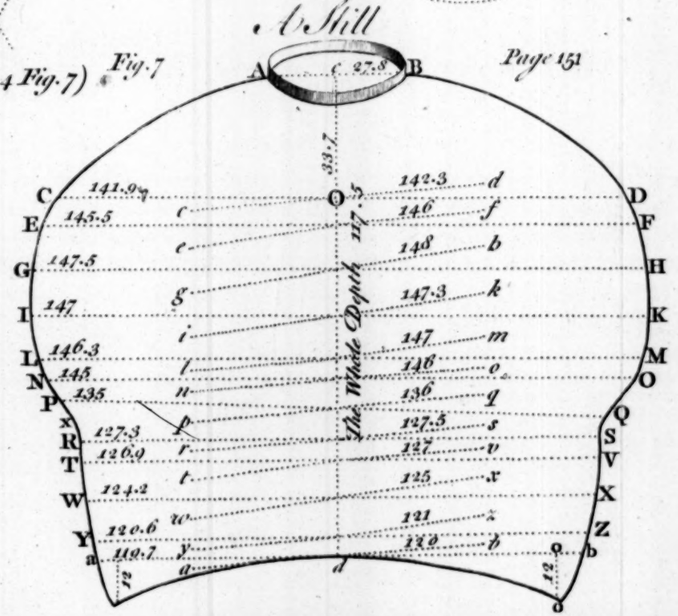


Fig. 8
Page 151

A Still

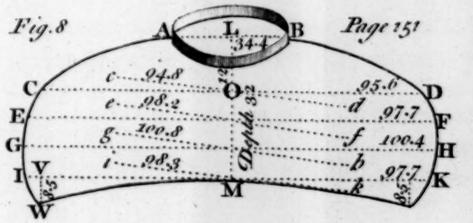
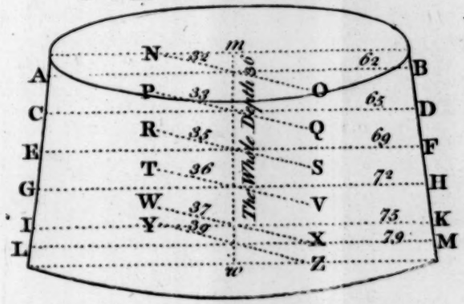


Fig. 4
Page 133

A Distiller's Back



or thinner than the reſt; and if it be, make an Allowance accordingly. The Length *is moſt commodiouſly taken with* Callipers *made for that Purpoſe, allowing for the* Thickneſs *of both Heads* 1.0, *or* 1.5, *or* 2.0 *Inches, according to the Size of the Caſk. But if you have no* Callipers, *do thus: Meaſure the* Length *of the* Staff; *then laying a* Rule *acroſs each* Head, *meaſure the* Depth *of the* Chimes; *which together with the* Thickneſs *of the* Heads, *being ſubtracted from the* Length *of the* Staff, *leaves the* Length within.

For a Caſk ſtanding.

The RULE *for taking the* Dimenſions *of a* Caſk STANDING.

The Head *is to be taken as of the* lying Caſk; *the* Bung-Diameter *is beſt taken thus: Lay one Side of a* Square *over the* Chimes *of the* Caſk, *that the other may juſt touch the* Bung *of the* Caſk. (A Square of this Sort may be had of Mr. *Gilbert*, Mathematical Inſtrument Maker on *Tower-Hill*,*) *then obſerve what each* Chime *of the* Caſk *cuts on the* Square, *add the Inches and* Tenths, *which the* Chime OPPOSITE *the* Square *cuts, to the* Inches *and* Tenths, *which the* NEARER Chime *cuts; and from the* Sum *ſubtract* TWICE *the* Thickneſs *of the* Bung Staff, *viz.* 0.8, *or* 1.0, *or* 1.2, *or* 1.4, *or* 1.6, *according to the* Size *of the* Caſk.

The Length *is to be taken with the ſame* Caution, *that the* Bung Diameter *is in a* LYING Caſk.

CAſks being of *various Curvitures*, Gaugers do uſually ſuppoſe every Caſk to be *in the Form* of ſome one of theſe following *Solids*. [See alſo *Pages* 177, 178, and 179.]

Viz.
1. The *middle Fruſtum* of a *Spheroid.*
2. The *middle Fruſtum* of a *Parabolic Spindle.*
3. The *lower Fruſtums* of two equal *Parabolic Conoids.*
4. The *lower Fruſtums* of two equal *Hyperbolic Conoids.*
5. The *lower Fruſtums* of two equal *Cones.*

First Variety.

1. Now to have a true *Notion* of theſe ſeveral *Caſks*, view *Plate* 4. *Fig.* 3. and *Plate* 5. in which the *outmoſt* Lines, which repreſent the *Staves*, are very much *curved* or *arching*. This repreſents a *Caſk* of the *firſt* Variety, and is what is called the *middle Fruſtum* of a *Spheroid*, and conſequently *will hold more* than a Caſk of *any other Form.* 2. The

* This *Inſtrument* is compoſed of *two Pieces* of *Mahogony*, each being about 38 Inches long, 2 ¾ Broad, and ½ an Inch Thick, and faſtened together by a *braſs Joint*, ſo that when *ſhut* it is very portable, and when it is *open* it forms the Square. See *Plate* I. *Fig.* 25, and 26; where *Fig.* 25 repreſents it *open*, and *Fig* 26 repreſents it *ſhut*. When open it is *fixed* ſteady by means of a *ſmall Pin* at *b*; and when *ſhut* the Legs are faſtened together by a *ſmall Hook and Eye*, at *c*. And that the Reader may not find any *Difficulty* in *applying the Square*, we have given a Repreſentation of it on *Plate* 5, where ABC is the *Square* applied to the Caſk, in the manner it is to be made uſe of in taking Dimenſions.

But if the young Gauger has not *ſuch a Square*, he may find the *Bung Diameter* of a *ſtanding Caſk* by the following Method: Lay a *Rule* over the *Center* of the *Head* on the *Chimes of the Caſk*, and near the End of the Rule faſten *a Line and Plummet*; move the Rule 'till the *Plumb-line juſt touch* the Caſk *at the Bung*: Then will the *Diſtance* intercepted between the *Plumb-line* and the *Center of the Head*, be equal to *Half* the Bung Diameter, the *Thickneſs of the Staff* being *ſubtracted*, as above directed. See *Plate* 5, where DEF repreſents the *Rule* lying on the *Chimes* of the *Caſk*, (which is ſuppoſed to be ſtanding on its Head) and gG, a *Plumb-line* faſtened to the Rule, and *juſt touching* the Caſk at H the Bung. Now it is evident that the *Diſtance* g E is equal to H I, *half* the Bung Diameter including the *Thickneſs* of the *Staff*, which being ſubtracted from it, we ſhall have HALF *the Bung Diameter of the* INSIDE *of the Caſk.*

Second Variety. 2. The *next curved Line* within that I have been ſpeaking of, repreſents a *Caſk* of the *ſecond* Variety; and its *Contents* will be *leſs* than that of a *Spheroid:* This is called the *middle Fruſtum* of a *Parabolic Spindle.*

Third Variety. 3. The *lower Fruſtum* of *two equal Parabolic Conoids* is the *next curved Line*; and holds *leſs* than the *ſecond* Variety, as is eaſy to conceive. This is called a *Cask* of the *third* Variety.

Fourth Variety. 4. The *fourth* Variety, which is the *lower Fruſtum* of *two Hyperbolic Conoids.* The *Staves* of ſuch a *Caſk* are *more ſtreight*, and conſequently holds *leſs* than any of the *other three* before mentioned. This is not repreſented in the Figure, becauſe it would be too much crouded; but will be found in *Plate* 5.

Fifth Variety. 5. A *Caſk* in the Form of *two equal Cones, abutting* on *one common Baſe*, is repreſented in *Plate* 5. by the *innermoſt* Line, which is *perfectly ſtreight* from *Head* to *Bung*; that is, from A to B, or from B to I. This *Caſk*, of all others, holds *the leaſt.*

N. B. Some Writers have treated of *another* Variety of Caſks, *viz.* the *Hyperbolic Spindle*, which has its Staves a little *leſs* curved than the *Parabolic Spindle*, and conſequently a Caſk of that Form will hold *leſs* than thoſe of the *firſt* and *ſecond* Variety. How to gauge or find the Contents of a Caſk of *this Form*, I ſhall ſhew by and by.

But as it is difficult, even for expert Gaugers to determine the *Form* of the *Caſk* by the *Eye*, we ſhall lay down the following Method, by which the *true* Form *of any Caſk* may be found.

The METHOD.

Make *a Mark* exactly at *the Middle* of the *Bung-ſtaff*, lay *the Square* over *the Chimes* to touch *the Mark*, and obſerve the *Diſtance* from *the Chimes* to this Mark at *the Bung*; then at *half* that *Diſtance* from *the Chime*, meaſure with a Rule the *Diſtance* of the *Side of the Square* from the Staff, holding the Rule *Parallel* to the *upper Side of the Square*; then DIVIDE *that Diſtance*, by *the Diſtance* the Chime *cuts* on *the Side* of *the Square*, and if *the Quotient* be *about* .23, the Caſk is of the FIRST *Variety*; if *about* .28 of the SECOND *Variety*; if *about* .34 of the THIRD *Variety*; if *about* .42 of the FOURTH *Variety.*

Example. Suppoſe the *Bung-Diameter* of a Caſk be 31 *Inches*, the *Head-Diameter* 25 *Inches*, and the *Length* 46 *Inches:* And that laying the *Square* over the *Chimes*, the *Square* touches the *Chimes* at 3.5 *Inches*, and exactly at *half Way*, between the *Chime* and the *Mark* at the *Bung*, the *Diſtance* from the *Side of the Square*, from the Staff is .8, I demand *the Form* of the Caſk?

Here the Diſtance from the Side of the Square to the Staff is .8, which DIVIDED by 3.5, quotes .22, which being near .23, it may be concluded that the Caſk is the Fruſtum of *a Spheroid* or Caſk of the FIRST *Variety.*

Three Varieties on the Sliding Rule. The *firſt*, *ſecond*, and *third* Variation of *Caſks* are put upon *one Edge* of the *Sliding Rule.* (See *Plate* A. *Fig.* 4.) Their Uſe will be more fully ſhewn by and by in their proper Places.

And

And now if you conſult *Plate* III. you will have the Form of every particular *Caſk* repreſented in a Figure by itſelf.

Of the Spheroid. 1. In the *Spheroid* (*Fig.* 1. *Plate* III.) if it be cut by a *Plane parallel* to C D as T V, through the *Middle* of I B, the *Content* of the *Fruſtum* T B V, to the *Content* of a *Cylinder*, whoſe *Baſe* is T V, and *Altitude* W B, is as 5 to 9; therefore the *Area* of the *Baſe* T V, *multiplied* be *five Ninths* of W B, gives the *Content* of the *Fruſtum* T B V.

Wallis's Algebra, *Page* 312. 2. If the *Spheroid* be cut as above, the *upper Fruſtum* T C E A F D V is *equal to* a *Cylinder*, whoſe *Baſe* is T V, and its *Altitude* W A; therefore the *Area* of the *Baſe* T V, *multiplied* by the *Altitude* W A, gives the *Content* of the *Fruſtum*, T C E A F D V.

To deſcribe the Spheroid. 3. To deſcribe a *Spheroid*. (*Plate* III. *Fig.* 1.) the *middle Fruſtum* of which ſhall repreſent a *Caſk* of the *firſt Variety*, whoſe *Bung-Diameter* C D is 31 Inches, the *Diameters* at the *Head* E F and G H are *each* 24 *Inches*, and the *Length* R S 32.5, to find the *Content* in *Ale* and *Wine* Gallons.

From the *Square* of C D, the *Bung-Diameter*, *ſubtract* the *Square* E F, the *Head Diameter*. Then,

As *that Difference* = 385
Is to the *Square of* C D 961
So is the *Square of* I R 264.0625
To the *Square of* I A 659.1274

The *Square Root* of which is 25.67, the *Semi-Axis* of the *Spheroid*.

1. With which, as a *Radius*, deſcribe the *Circle* K A L B.

2. Draw the Line K L.

3. And from the *Point* I, ſet off *half the conjugate Diameter* 15.5 to C and D.

4. Alſo ſet *half* R S = 16.25 from I to R and S.

5. Draw Lines through R and S, *parallel* to CD, *viz.* MN and G H.

6. Draw O Q *parallel* to C D; *join* I O and I M; I * ſay, I M *ſquared* — I R q = M R q. And as I K is to I C; ſo is M R to E R: This will hold wherever R be taken, and give the *Points* P E as many as you pleaſe.

An Illuſtration by Numbers.

IK IC MR ER

Illuſtration by Numbers. As 25.67 is to 15.5, ſo is 19 to 11.47; this E R falling ſo near the *Head Diameter*, I make E R to ſerve for *this Line*, as well as for the *Head Diameter*, which I make 24. And KI = MI = A I 25.67, *doubled* gives A B the *whole Axis* of the *Spheroid*.

And

* By the 47th *Propoſition* of the *Firſt Book* of *Euclid's Elements*, it is proved in the Triangle M R I, that the *Square* of I M is equal to the *Square* of I R and R M, by which M R is eaſily found to be 19. *ferè*.

And if from A I 25.67 you *subtract* I R 16.25, *half the Cask's Length*, there remains A R = S B 9.42.

How to gauge *Spheroidal Casks*.

Now to find the *Content* of the *Spheroid* GCEFDH, this is

The RULE.

The Rule.

1. *To the* Sum *and* half Sum *of the* Squares *of the* Bung *and* Head Diameters, add half *the* Difference *of the said* Squares; *the* Sum *of these* multiplied *by the* Length, *and the* Product divided *by* 1077.15 *for* Ale, *and by* 882.354 *for* Wine, *gives the* Content respectively.

An Example.

Example. Let the *Dimensions* be *as above*, I demand the *Content* in *Ale* and *Wine* Gallons?

According to EVERARD, *Page* 105.

Operation.

The Operation.

CD	31	EF	24
	31		24
	31		96
	93		48
The *Square* of CD	961	*Square* of EF	576
Square of EF	576		
The *Sum*	1537		
The *Half Sum*	768.5		
½ *Difference* of the *Squares*	192.5		
The *Sum* of all *Three*	2498.		
The *Cask's* Length	32.5		
	12490		
	4996		
	7494		

Ale. 1077.15) 81185.0000 (75.37 *Ale* Gallons.

Wine. 882.354) 81185.00000 (92.01 *Wine* Gall.

Or,

According to BAMFORD, *Page* 85.

□ 31 = 961 □ 24 = 576

961

576

2498 + 32.5 = 81185. as above.

Or,

Or,

2. *To* twice *the* Square *of the* Bung Diameter, add once *the* Square *of the* Head Diameter, multiply *the* Sum *by the* Length *of the* Cask within, *and divide the* Product *as before for* Ale *and* Wine Gallons. Another Rule.

Example. Let the Dimensions be *as above*, I demand the *Content* in *Ale* and *Wine Gallons?* An Example.

Operation by *Rule* 2. The Operation.

CD =	31	
	31	
	31	
	93	
The *Square*	961	
	2	
Twice the *Square*	1922	
EF *squared* =	576	
The *Sum*	2498	
The *Length* = RS	32.5	
	12490	
	4996	
	7494	

EF = 24, 24, 96, 48, 576

1077.15) 81185.0000 (75.37 *Ale Gallons.* Ale.

882.354) 81185.00000 (92.01 *Wine Gallons.* Wine.

By the *Sliding Rule.*

Multiply the *Difference* between *Head and Bung* always by .7, (or more correct by ,697, to make it agree with the *Sliding Rule*,) and that *Product added* to the *Head Diameter* is a *mean Diameter*, which *reduceth* the Cask into a *Cylinder*; so the *Difference* between *Head* and *Bung* is 7 × .7 = 4.9 + 24 = 28.9 the *mean Diameter*. By the Sliding Rule.

Or,

Look upon *one Edge* of the *Sliding Rule* for 7. the *Difference*, and *right under it* you will find 4.9 nearly, to be *added* to the *Head Diameter*, then on the *Lines* C and D.

D		C	D	C	
As 18.94	*is to*	32.5	*so is* 28.9	*to* 75.37	*Ale Gallons.* Ale.
As 17.14	*is to*	32.5	*so is* 28.9	*to* 92.01	*Wine Gallons.* Wine.

But

But the *mean Diameter*, and consequently the *Content* of this Cask, may be found more expeditiously thus.

The RULE.

The Rule. *To the* Head *Diameter* add two Thirds *of the* Difference *of the* Head *and* Bung, *and to this* add one Third *of the* Quotient *arising from* dividing *the* Square *of the* Difference *of the* Diameters, *by* the Sum *of the* Head, *and* twice *the* Bung, *gives the* mean Diameter *sought*.

An Example. *Example.* Let the *Bung* Diameter be 31, and *Head* 24 *Inches*; What's the *mean Diameter?*

Operation.

The Operation.

	By *Factor*.
Head 24	
$\frac{2}{3}$ of X 7 = 4.66	.697
$\frac{2}{3}$ of .57, *viz.* 49 ÷ 86 = .19	X = 7.
Mean Diameter = 28.85	4.879
	24.
The *Mean* is nearly the same with the other	28.879

From hence the *Content* may be found as above.

N. B. *Everard* doth not mention the lower Frustum of *two Hyperbolic Conoids*.

Everard's Dimensions of a *Spheroid* are	Bung	32	*Bamford*'s Dimensions of a *Spheroid* are	Bung	34
	Head	24		Head	23.5
	Length	40		Length	44

Of the middle Frustum of a Parabolic Spindle.

2. To gauge the *middle Frustum* of a *Parabolic Spindle.*

See *Plate* III. *Fig.* 2.

1. To describe a Parabolic Spindle *in Plano*, the *middle Frustum* whereof shall represent a *Cask*, whose *Diameter* at the *Bung* CD = 31 *Inches*; the *Diameters* at the *Heads* NP and QR are *each* = 24 *Inches*, and the *Length* 32.5 *Inches*.

It is laid down by this Proportion.

How laid down. As EB *squared is to* EF *squared, so is* EC to *n m*; then F *m* — *n m* = F *n*, and so of all the rest; *through* which *Points* thus found, *draw* the *Curve*, and it's done.

In *Page* 118, I have told you that a *Parabolic Spindle* is $\frac{8}{15}$ of its *circumscribing Cylinder*; then to gauge its *middle Frustum* NCQRDP, this is

The

The RULE.

To double the Square *of the* Bung Diameter, add *the* Square *of the* Head Diameter; *from this* Sum *take* four Tenths *of the* Square *of the* Difference *between the* Head *and* Bung Diameters; multiply *the* Remainder *by the* Length *of the Cask* within, *and* divide *the* Product *by* 1077.15 *for* Ale, *and by* 882.354 *for* Wine Gallons. The Rule.

Example. Let the *Dimensions* be *as above*; I demand the *Content* in *Ale* and *Wine Gallons?* An Example.

Operation. The Operation.

CD = 31	NP = 24	CD = 31
31	24	NP = 24
31	96	*Difference* 7
93	48	7
The *Square* 961	576	*Square* 49
Multiply by 2		× .4
Double Square 1922		19.6
Square of NP 576		
The *Sum* 2498		
$\frac{4}{10}$ *Square Differ. ſubtract* 19.6		
2478.4		
The *Length* = OH = 32.5		
123920		
49568		
74352		

1077.15) 80548.0000 (74.78 *ferè Ale Gallons.* **Ale.**

882.345) 80548.00000 (91.28 *Wine Gallons.* **Wine.**

By the *Sliding Rule.*

The *Difference* between *Head* and *Bung* of this Caſk muſt be *multiplied* by .68, its *Product added* to the *Head Diameter* gives a *mean Diameter*, which *reduceth* the Caſk into a *Cylinder:* By the Sliding Rule.

Or,

On the *Sliding Rule* look for the *Difference* of the *Head* and *Bung Diameters*, and againſt it in the *ſecond* Variety is the *Number* to be *added* to the *Head Diameter*, as before. Therefore 31 — 24 = 7 × .68 + 24 = 28.76. now on the Lines C and D.

As

D C D C

Ale. *As* 18.94 *is to* 32.5 *ſo is* 28.76 *to* 74.78 *Ale Gallons.*

Wine. *As* 17.14 *is to* 32.5 *ſo is* 28.76 *to* 91.28 *Wine Gallons.*

Gauge Pt. Length. Mean. Content.

Note. Some inſtead of the *Factor* .68, uſe .63, which is ſomething nearer the Truth.

But the *Content* of this Caſk may be found *more expeditiouſly*, by finding a *mean Diameter* thus.

The RULE.

The Rule. *To the* Head *Diameter, add* two Thirds *of the* Difference *of the* Diameters, *and to this* four Thirtieths *of the* Quotient, *ariſing from* dividing *the* Square *of the* Difference *of the* Diameters *by the* Head, *and* twice *the* Bung *Diameter*, this Sum *is the* mean Diameter *ſought.*

Example. *Example.* Let the *Bung* Diameter be 31, the *Head* Diameter 24 *Inches*; What's the *mean* Diameter?

Operation.

The Operation.	*The Head* 24	By the *Factors.*
	$\frac{2}{3}$ of X 7 = 4.66	.68
	$\frac{4}{52}$ of .57 = .076	7.
	Mean = 28.736	4.76
		24.
	The *Mean* is nearly the ſame	28.76

Of the lower Fruſtum of two Parabolic Conoids.

3. To gauge the *lower Fruſtum* of two *Parabolic Conoids.*

See *Plate* III. *Fig.* 3.

This will be the beſt explain'd by delineating the Figure.

How to *delineate a Parabolic Conoid.*

How to delineate it. Let G H, the *Bung Diameter*, be = 31, I K = E F = 24, and B D, the *Length* 32.5; What's the *Content* in *Ale* and *Wine?*

From *the Square of* G C, *ſubtract the Square* of E D, then ſay,

As *that Difference*
Is to C B, the *Altitude* of the *Fruſtum*,
So is *the Square* of G C
To C A, *the Axis* of the *whole Conoid.*

That is, as G C *ſquared is to* E D *ſquared, ſo is* G C *to* C A.

Now,

Now, if from C A you *ſubtract* C B, there will remain B A, the *Altitude* of the *Parabolic Conoid*.

And ſince every *Parabolic Conoid* is *equal* to *half a Cylinder* of the *ſame Baſe* and *Altitude* I N *q* K, the *Area* of the *Baſe* G C H *multiplied* by *half* the *Altitude* C A, gives the *Content* of the *Parabolic Conoid*. And the *Area* of the *Baſe* I B K, *multiplied* by *half* the *Altitude* B A, gives the *Content*; *therefore*, if from *the Content* of G I A K H you *ſubtract* the *Content* of I A K, there will *remain* the *Content* of the *Fruſtum* G I K H.

Now A C ſtanding at *right Angles* to the *Baſe* G H, is called the *Abſciſſa*, and *b k*, *c h*, *d g*, *e f*, are called *Ordinates* rightly apply'd.

To find the Latus Rectum T V.

To find the *Latus Rectum*.

As { A C / 40 } *is to* { G C / 16.5 } *ſo is* { G C / 16.5 } *to* { TV. / 6.8 }

Note. The *Focus* thro' which the *Latus Rectum* muſt paſs, is diſtant for the *Vertex* A $\frac{1}{4}$ of the *Latus Rectum*, which in this Example is 1.7. Thus having obtained the *Latus Rectum*, the *Ordinates* may be had thus, *viz.* The *Rectangle* of the *Latus Rectum*, and its *intercepted Axis*, is *equal* to the *Square* of the *Ordinate*. So that A *w*, A *x*, A *y*, A *z*, A *a*, *multiplied* by the *Latus Rectum* T V, is equal to the *Square* of T *w*, or *e x ſquared*, *d y ſquared*, *c z ſquared*, I B *ſquared*, *b a ſquared*. Therefore A *w* 1.7 × T V 6.8 = to 11.56, whoſe *Square Root* = 3.4 = T *w* = *w* V, which drawing at *right Angles* to A C, gives the *two Points* T and V; and thus take *any Diſtance* in A C as A *x*, and *multiply* it by the *Latus Rectum*, the *Square Root* of that *Product* will give the *two Points* *e* and *f*; and after this manner may *as many Points* as you pleaſe be found, *thro' which* the *Curve* of the *Parabola* muſt paſs.

Or, without the *Latus Rectum*, thus:

Without the *Latus Rectum*.

Having A C and G C given: As any *Abſciſſa* is to the *Square* of its *Semi-ordinate*, ſo is *any other Abſciſſa* to the *Square* of its *Semi-ordinate*.

As A C *is to* G C *ſquared*, *ſo is* { A *a* / A B / A *z* / A *y* / A *x* / A *w* } *to* { *b a* / I B / *c z* / *d y* / *e x* / T *w* } *ſquared* { the *Square Roots* of which give *b a*, I B, *c z*, &c.

How to gauge *the* Fruſtum E G I B K H F.

To gauge a Fruſtum of a *Parabolic Conoid*.

RULE I.

To the Sum *and* half Sum *of the* Square *of the* Bung *and* Head Diameters, add $\frac{1}{10}$ *of the* Difference *of the* ſaid Squares; mul-

The Rule.

tiply *the* Sum *by the* Length within, equal *to* B D, *and* divide *by* 1077.15 *for* Ale, and *by* 882.354 *for* Wine Gallons.

Or,

RULE II.

A second Rule. *To the* Square *of the* Bung *Diameter*, add *the Square* of the Head, *and* multiply *that Sum by the* Length *of the Cask, and* divide *by* 718.1 *(that is twice* 359.05*) for* Ale, *and* 588.236 *for* Wine, *it gives the Content* nearly *in* Ale *and* Wine Gallons *respectively.*

Note. Some instead of the *Factor* .54, use .56.

But if you gauge this Cask by *Rule* II. and would do it by the *Sliding Rule*, then the *Factor* for reducing it to a *Cylinder* is only .54.

An Example. *Example.* Let the *Dimensions* be the same as in the *Spheroid* and *Parabolic Spindle, viz.* the *Bung Diameter* 31 *Inches*, the *Head* F E = I K = 24, and the *Length* B D 32.5; What's the *Content* in *Ale* and *Wine Gallons?*

Operation by the *first Rule.*

The Operation.

G H = 31	E F = 24
31	24
31	96
93	48

The *Squares* { 961 / 576 } And 961 — 576 = 385 and $\frac{1}{10}$ = 38.5.

The *Sum*	1537
Half the *Sum*	768.5
One *Tenth*	38.5

add.

The *Sum*	2344.0
B D	32.5
	11720
	4688
	7032

Ale. 1077.15) 76180.0000 (70.72 *Ale Gallons.*

Wine. 882.354) 76180.00000 (86.34 *Wine Gallons.*

By

By the *Sliding Rule.*

Multiply the *Difference* of the *Head* and *Bung Diameters* by .58, *add* the *Product* to the *Head Diameter*, which reduceth the *Cask* into a *Cylinder*, then on the Lines C and D. By the Sliding Rule.

D		C		D		C	
As 18.94 / 17.14	*is to*	32.5 / 32.5	*so is*	28.06 / 28.06	*to*	70.72	*Ale G.*
						86.34	*W. G.*
Gauge Pt.		*Length.*		*Mean.*		*Content.*	

☞ But *the Content* of this Cask may be found *more expeditiously*, by finding a *mean Diameter*, thus, *viz.*

The RULE. The Rule.

To the Head *Diameter* add half *the* Difference *of the* Diameters; *add to this*, one fourth Part *of the* Square *of the said* Difference, divided *by* the Sum *of the* Diameters, *and* that Sum *is the* mean Diameter *sought*.

Example. Let the *Bung* Diameter be 31, *Head* Diameter 24 *Inches*; What's the *mean Diameter?* An Example.

Operation. The Operation.

The *Head* 24.	By the *Factors.*
$\frac{1}{2}$ *Diff.* Diameters 3.5	.54
$\frac{1}{4}$ X □ ÷ Z *Diameters* .223	7.
Mean Diameter = 27.723	3.78
	24.
The *mean Diameter* nearly agreeing	27.78

Now having found the *mean Diameter*, I find the *Content* of the Cask as follows.

See the Operation on the following *Page.*

The Operation.

Operation.

Mean Diameter 27.7
× 27.7
1939
1939
554
Of the *mean Diameter* 767.29
Length 32.5
383645
153458
230187

Ale. 359.05) 24936.9250 (69.45 *Ale Gallons*,
215430 ...
339392
323145
162475
143620
188550
179525
9025

Wine. If you would have the *Content* in *Wine* Gallons, *divide* by 294.118.

Sliding Rule. Or, By the *Sliding Rule*.

As in *Page* 163, you will find the *Content* 84.78.

Of the lower Fruſtum of two Hyperbolic Conoids.

4. To gauge the *lower Fruſtum* of two *Hyperbolic Conoids*.

See *Plate* III. *Fig.* 4.

How to delineate an *Hyperbola*, *in Plano*, is ſhewed in *Page* 89. and the *lower Fruſtum* of *two Hyperbolic Conoids*, abutting upon *one common Baſe*, is demonſtrated A *k p* B, B E F A.

The RULE *how to gauge this.*

The Rule. *To* the Sum *of the* Squares *of the* Bung *and* Head Diameters, add *the* Product *of the* Bung, multiplied *by the* Head Diameter; *this* Sum multiply *by the* Length *of the* Caſk within, *and* divide *the* Product *by* 1077.15 *and* 882.354. *this will give* the Content *in* Ale *and* Wine Gallons.

Example.

Example. Let the *Head* = 24, *Bung* 31, and *Length* 32.5 Inches, (as in the other Casks above;) What's the *Content* in *Ale* and *Wine Gallons*? An Example.

Operation.

			The Operation.
A B = 31	*kp* = 24	A B = 31	
31	24	*kp* = 24	
31	96	224	
93	48	62	
Square { 961	The *Square* 576	The *Product* 744	
{ 576			
A B × *kp* 744			
The *Sum* 2281			
C *d* = 32.5			
11405			
4562			
6843			

1077.15) 74132.5000 (68.82 *Ale Gallons.* Ale.

882.354) 74132.50000 (84.02 *Wine Gallons.* Wine.

By the *Sliding Rule.* By the Sliding Rule.

Multiply the *Difference* between the *Head* and *Bung* by .52, and that *Product added* to the *Head* 24, makes 27.64, the *mean Diameter*, then on the *Lines* C and D.

	D		C		D		C		
As {	18.94	*is* {	32.5	*so* {	27.64	*to* {	68.82	*Ale Gallons.*	Ale.
{	17.14	*to* {	32.5	*is* {	27.64	{	84.02	*Wine Gall.*	Wine.
	Gauge Pt.		*Length.*		*Mean.*		*Content.*		

See this Cask gauged by the *Factors* and *mean Diameter* on the following *Page*.

The *foregoing Cask* gauged by the *Factors* and *mean Diameter*.

Factor .52
Bung Diam. 31 *Difference* 7.
Head Diam. 24 —
— 3.64
Difference 7 24.
Mean Diameter 27.64
× 27.64
11056
16584
19348
5528
□ Mean Diameter 763.9696
Length — — 32.5
38198480
15279392
22919088
Ale. 359.05) 24829.01200 (69.124 Ale Gallons.
215430 ....
328601
323145
54562
35905
86570
71810
147600
143620
3980

For the *Conoid*, X 7. × .54 = 3.78 + 24 = 27.78
□ = 771.7284 × 32.5 359.05 = 69.85 } *Ale Gallons.*
Content of the *Hyperbola* — — — 69.124 }
Difference — — — — 0.726

5. To

5. To gauge the *lower Fruſtum* of *two Cones*, abutting upon one *common Baſe*. Of the lower Fruſtum of two Cones.

See *Plate* III. *Fig.* 5.

Definition. This is explain'd in *Plate* III. *Fig.* 5. in which D A E is a *Cone*, D F G E the *lower Fruſtum*, and D E I H is the *lower Fruſtum* of *another Cone* abutting upon the *Baſe* of the *other Cone* D E; ſo that F G E I H D repreſents this Caſk, whoſe *Staves* from *Head* to *Bung* are *perfectly ſtreight*, as G E, *&c.* 'tis plain from the Figure that this Caſk holds the leaſt of all others; and to gauge it, this is Definition.

The RULE.

From the Sum *and* half the Sum *of* the Squares *of the* Bung *and* Head Diameters, ſubtract half the Square *of* the Difference *of* the two Diameters; multiply *the* Remainder *by the* Caſk's Length, *and* divide by 1077.15, *and by* 882.354, *which will give* the Content *in* Ale *and* Wine Gallons. The Rule.

Example. Let the *Dimenſions* be as before, *viz.* the *Length* 32.5, *Bung* 31, and *Head* 24 *Inches*; I demand the *Content* in Ale *and* Wine Gallons? An Example.

Operation. The Operation.

D E = 31	F G = 24	D E = 31		
31	24	24		
31	96	7	the *Diff.*	
93	48			
	Square of 49	the *Diff.*		
The *Square* 901	576			
The *Sum* of F G 576	*Half* the *Square* 24.5			
The *Square* 1537				
Half the *Sum* = 768.5				
The *Sum* 2305.5				
Subtract 24.5	*Half Square* of the *Difference.*			
2281.0				
B C = 32.5				
11405				
4562				
6843				

1077.15) 74132.5000 (68.8 *Ale Gallons.* Ale.

882.354) 74132.50000 (84. *Wine Gallons.* Wine.

By the Sliding Rule.

By the *Sliding Rule*.

The *common Multiplicator* for *reducing* of *this Caſk* to a *Cylinder* is .51: So 31 — 24 = 7 × .51 = 3.57 + 24 = 27.57 the *mean Diameter*.

	D	C	D	C	
Ale.	As 18.94	is 32.5	ſo 27.57	to 68.8	*Ale Gallons.*
Wine.	17.14	to 32.5	is 27.57	84.	*Wine Gallons.*
	Gauge Pt.	*Length.*	*Mean.*	*Content.*	

Note. You may find the *Diameter* at *every Inch* from *Head* to *Bung*, as has been taught in *Page* 126: and the *Sum* of the *Areas* anſwering thoſe *Diameters* will be the true *Content* of the *Veſſel*.

To Inch the Fruſtum.

To *inch* the *Cone's Fruſtum*, (in the *foregoing Example*,) the *Diameters* being taken in the *Middle* of every Inch.

Depth.	*Diam.*	*Areas.*
16.125	24.06	0.405
15.5	24.33	1.64
14.4	24.75	1.70
13.5	25.19	1.77
12.5	25.62	1.82
11.5	26.05	1.88
10.5	26.48	1.95
9.5	26.91	2.02
8.5	27.34	2.07
7.5	27.77	2.15
6.5	28.20	2.21
5.5	28.63	2.28
4.5	29.06	2.34
3.5	29.49	2.42
2.5	29.92	2.49
1.5	30.35	2.56
.5	30.78	2.64
0	31. *Bung.*	

Depth. Difference. Factor.

16.25) 7.000000 (.4307

6500

5000

4875

12500

11375

1125

Common × = .4307

Depth —— .5

Subtract .21535 from the *Bung-Diameter* 31.

Diameter 30.78645

34.345 }
+34.345 }

Whole Content 68.690 *Ale* Gallons.

Note. .405 is $\frac{1}{4}$ of the *Area* 1.62, which belongs to the *Diameter* 24.06, becauſe 15.5 *deep* gauges it to 16 *deep*; ſo there is but $\frac{1}{4}$ of an Inch *deep* more, for which $\frac{1}{4}$ of the *Area* is taken.

Having

Having found the Content of the Cask, as shewn in the *Frustum* of a *Conoid*, then if we find a *Number* by which if the *Difference* between *Head* and *Bung be multiplied*, and that Product *added* to the *Head* Diameter, it will reduce that Cask into a *Cylinder*, equal in Content to that of the Cask. I say, that is *the Factor* sought: and this I have exemplified in *the Conoid* above, whose *Factor* is .54 exactly agreeing.

☞ But the *Content* of a Cask in the Form of the *lower Frustum* of *two Cones*, may be *more expeditiously* found, by finding a *mean Diameter* thus.

The RULE.

The Rule.

To the Head *Diameter*, add half *the* Difference *of the* Diameters *to this* one Twelfth *of the* Quotient, *found by* dividing *the* Square *of the* said Difference *by the* Sum *of the* Diameters, *and this* Sum *is the* mean Diameter *sought*.

An Example.

Example. Let the *Bung* Diameter be 31, *Head* Diameter 24 *Inches*; What's the *mean Diameter?*

Operation.

The Operation.

Head 24.	By the *Factor*.
Half of 7 = 3.5	.51
One Twelfth of .89 = .07	7.
Mean Diameter 27.57	3.57
	24

Mean Diameter agreeing exactly = 27.57

Now to find the *Contents* in *Ale* and *Wine* Gallons, work as in *Page* 164.

6. How to *delineate* and *gauge* an *Hyperbolic Spindle*.

Of the Hyperbolic Spindle.

See *Plate* III. *Fig.* 6.

The *Middle Frustum* of which G A H I C F shall represent a *Cask*, whose *Diameter* at the *Bung* A C = 31 *Inches*, the *Diameters* at the *Heads* G F, H I, are each 24 *Inches*, and the *Length* K L = 32.5 *Inches*; and to find the *Content* of this *Frustum* in *Ale* and *Wine Gallons*,

Draw the *right Line* D E and at *right Angles* thereto the line *s* C; make K B, and B L each *equal to* the *half Length* of the Cask; *through* the *Points* K and L draw the Lines K O and L *q parallel to s* C. Make K G and L H, *each* equal to 42, and B A = 15.5, make B *r* = K G, so shall A *r* be 3.5, I say the *Square r* G = 264.0625 *divided* by A *r* 3.5, *gives* 75.446, from which *subtract* 3.5, *rests* 71.946 the *transverse Diameter* of the *Hyperbola*.

Make

Make A *s* = 28.94 (half of 57.88) and *through* the *Point s*, draw the Line M N *parallel to* D E, and let the Line G O be *parallel* to *s* C; I ſay, the *Square* of *s* A, *more the Square of* O *s*, is *equal to* the *Square* of O G, of which the *ſquare Root* is the *Length* of the Line O G. Now *s* B — O G = G K, which *doubled* gives G F, a *Diameter* in the *Spindle*; and this will hold wherever O or *q* be taken, and ſo *innumerable Diameters* G F, *t v*, H I, may be found *on both Sides* A C to the *Spindle*. And if *Diameters* be found thus in *the Middle* of *every Inch* from K to L, the *Sum* of thoſe *Areas* anſwering, will be the *Content* of the *middle Fruſtum* of the *Hyperbolic Spindle*: This being more for *Speculation* than *Uſe*, I ſhall leave the Practice to the induſtrious Student.

The Rule.

A General RULE for *gauging* an *Hyperbolic Spindle.*

To twice *the Square of the* Bung *Diameter*, add *the Square of the* Head, *and call this* the firſt Number. *To the* Square *of the Length*, add *the Difference of the Squares of the* Bung *and* Head *Diameters*; multiply *this Sum by* fourteen Times *the Square of* the Difference *between the* Bung *and* Head *Diameters*, *which* Product *is a* Dividend: *From* thirty-five Times *the Square of the* Length, *take* five Times *the Square of the* Difference *of the* Head *and* Bung *Diameters*, *and the* Remainder *is the* Diviſor; *the* Quotient *of this Diviſion call* the ſecond Number; *then* multiply *the Difference of the* firſt *and* ſecond *Numbers of the* Length *of the Caſk*, *and that* Product divide *by* 1077.15 *for* Ale, *and by* 882.354 *for* Wine, *(which are no more than* three Times *the* Diviſor *for* Circles, *as in* Page 51.) *will give the* Content *in* Gallons *reſpectively.*

An Example.

Example. Let the Dimenſions of the *Hyperbolic Spindle* be *Length* = KL 32.5, *Bung* = AC 31, *Head* = GF 24; What's the Content?

See *Plate* III. *Fig.* 6.

The Operation.

Operation.

Twice the Square of the *Bung*	1922
The Square of the *Head*	576
The *Sum*, is the *firſt Number*	2498
The *Square* of the *Length*	1056.25
Difference of *Squares* of *Bung* and *Head* Diameters	385.+
	1441.25
14 times the □ X of *Bung* and *Head* Diameters —	686.
	864750
	1153000
	864750
The *Dividend*	988697.50

The *Dividend* —— —— —— —— 988697.50

From 35 times □ *Length* —— —— —— 36968.75
Take 5 times □ of 7 —— —— —— 245.

Rem. Diviſor —— —— —— —— 36723.75

2498. *firſt* Number.

36723.75) 988697.500 (26.9 *ſecond* Number.

Difference firſt and ſecond Number — 2471.1
Length × 32.5

123555
49422
74133

1077.15) 80310.750 (74.5 *Ale G.* Ale.
••

882.354) 80310.7500 (91.2 *ferè* W. Wine.
•• [*Gall.*

By the *Sliding Rule.*

If *the Difference* of *Head* and *Bung* Diameters be *multiplied* by .67, and that Product *added* to the *Head Diameter*, it will give you a *mean Diameter* near enough in Practice; but otherwiſe it might be done thus: Set the *Gauge Point* 32.82 (the *Square Root* of 1077.15) on D, to the *Length* on C, then againſt the *Bung*, *Head*, and *Difference* of the *two Diameters* on D, are *three Numbers* on C; then to the *Double* of the *firſt* (or that which anſwers the *Bung Diameter*) *add* the *ſecond*, and *ſubtract half* the *third*, gives the *Content* in *Ale* Gallons. By the Sliding Rule.

G. P. Length. 32.82 : 32.5 :: { 31 B. / 24 H. / 7 *Diff.* } : { 28.8 × 2 = 57.6 / 17.37 add = 17.3 } Ale.

The *Sum* 74.9
The *Number* upon the *Line* C anſwering 7 = 1.47½ = — .8

Ale Gallons 74.1

For *Wine.* Wine.

G. P. Length. 29.7 : 32.5 :: { 31 B. / 24 H. } 35.4 — 70.8 / 21.2

Sum = 92.0
Difference 7 = 1.8½ = — 9

Wine Gallons 91.1

☞ But

☞ But the *Content* of the *middle Fruſtum* of the *Hyperbolic Spindle* may be *more expeditiouſly* found, by finding a *mean Diameter* thus.

The RULE.

The Rule. *To the* Head *Diameter*, add two Thirds *of the* Difference *of the* Diameters, *and to this* add one Twelfth *of the* Quotient *found by* dividing *the* Square *of the* Difference *of the* Diameters *by the* Head added *to* twice *the* Bung *Diameter*, *and* this Sum *is the* mean Diameter *ſought*.

An Example. *Example.* Let the *Bung* Diameter be 31, and the *Head* Diameter 24 *Inches*; What's the *mean Diameter?*

The Operation.

Operation.

	By the *Factor*.
The *Head* 24.	.67
Two Thirds of X 7 = 4.66	7.
$\frac{1}{12}$ of .57, *viz.* 49 ÷ 86 = .0475	
	4.69
The *mean Diameter* 28.7075	24.
The *mean Diameter* nearly agreeing	28.69

Now to find the *Contents* in *Ale* and *Wine* Gallons, work as in *Page* 164.

Of the Circular Spindle.

7. How to *delineate* and *gauge* a *Circular Spindle.*

See *Plate* III. *Fig.* 7.

Definition. *Definition.* If the *Arch* of the *Circle* C A D be turn'd about upon its *Chord* C D, it will deſcribe a *Solid* CFAH, DIBGC called a *Circular Spindle.*

To deſcribe a *Circular Spindle*, the *middle Fruſtums* of which ſhall repreſent a Caſk, whoſe *Bung Diameter* A B = 31 *Inches*, the *Diameters* at the *Head* F G and H I, are each 23 *Inches*, and the *Length* K L 38.5.

To find the *Content* of ſuch a Caſk in *Ale Gallons*, *divide* the *Square* of the *half Length* of the Caſk by *half* the *Difference* between the *Head* and *Bung Diameters*; and to the ſaid *half Difference*, add the ſaid *Quotient*, the *half* of *this Sum* is *equal to* the *Radius* AO; with which, upon O (as a *Center*) deſcribe the *Arch* M A N; draw M N and A O at *right Angles* thereto: Make A E = 15.5, the *Semi-Diameter* at the *Bung*. Draw C D *parallel to* M N, and make E B = A E, and draw *the Arch* C G B I D, (with the *ſame Radius* you drew the *Semi-circle*) *ſet off* the *Length* of the Caſk from K to L, *through* which *Points* draw Lines *parallel to* A B; ſo ſhall F G and H I be the *Head Diameters* of the Caſk, and each 24 *Inches*.

To

To find *the Diameter* in the *Middle* of *every Inch* from A B towards F G: Now becauſe F P is *parallel to* A O, the *Triangle* P F O = *Triangle* F O *q*; conſequently P O = F *q*. Now by what is taught in *Page* 25, if from the *Square* of F O (which is always *equal to* A O *Radius*,) you *ſubtract* the *Square* of P O, the *ſquare Root* of the *Remainder* will be P F, from which *ſubtract* F K, (being always given in the Queſtion) there will *remain* P K, which will be always *the ſame* throughout all the Parts of the *Length* of the Caſk K L.

An *Illuſtration* of all the *Proceſs* in *Numbers*.

An Illuſtration by Numbers.

K E = E L = 19.25 *ſquar'd* = 370.5625, *divided* by 4, *half* the Difference between the *Head* and *Bung Diameters*. *Quot*. 92.64 + 4 = 96.64 *half* = 48.32 = A O = F O, then becauſe P O = F *q*; in the *Triangle* F P O, I find P F = 44.32 — F K 11.5 = K P 32.82, which is a *conſtant ſtanding Number*; theſe Things being premiſed, let it be required to find a *Diameter* in *the Middle* of *every Inch* from K to E = F *q*, then the *Middle* of the *firſt* Inch from F the *Head Diameter* will make F *q* = 18.75 = P O, (for the Line F P approacheth *nearer* to A O, by ſo much as you take the *Diameter farther* from K, till at *laſt* F P will *co-incide* with A O,) whoſe *Square* taken (always) from 2334.8224, the *Square* of F O = 48.32, from whoſe *ſquare Root* take the *ſtanding Number* 32.82 = P K, there will *remain half* the Diameter ſought, which I have thus calculated, and inſerted in the following *Table*, with their *Areas*.

See the following *Page*.

A Table

A TABLE ſhewing the *Content* of *Half* the *Middle Fruſtum* of the *Circular Spindle* F A B G.

See *Plate* III. *Fig.* 7.

A Table of half the middle Fruſtum of a Circular Spindle.

Diſtance from	*Diameters* in *Inches.*	*Areas* in *Ale Gallons.*
G F=0	23.00	——
.5	23.42	1.53
1.5	24.24	1.64
2.5	25.00	1.74
3.5	25.72	1.84
4.5	26.38	1.94
5.5	27.00	2.03
6.5	27.58	2.12
7.5	28.10	2.20
8.5	28.58	2.27
9.5	29.00	2.34
10.5	29.40	2.41
11.5	29.74	2.46
12.5	30.04	2.51
13.5	30.30	2.56
14.5	30.54	2.60
15.5	30.70	2.62
16.5	30.84	2.64
17.5	30.94	2.66
18.5	30.98	2.67
19.25	31.00	0.67
	The *Sum*	43.45
	Double the *Sum*	86.90

So the *Content* of the *Fruſtum* F A H I B G is 86.90 *Ale Gallons*, as in the above Table.

Here you ſee I have (according to the Doctrine above) calculated the Diameters in the *Middle* of *every Inch*, from the *Head* G F, *towards the Bung* A B, and 19 of thoſe *Areas* gauges the *Fruſtum* to 19 *Inches* from the *Head* G F; and becauſe there is *one Quarter of an Inch more*, I take $\frac{1}{4}$ of the *Area anſwering the Bung Diameter* 31, *viz.* $\frac{1}{4}$ of 2.68 = 0.67 *Parts* of a *Gallon*, which I *add* to the other *Areas*, and the *Sum* is as you ſee in the *Table* annexed. The *Operation* for the *Diameter* of the Middle of the *ſecond Inch* from G F, that is at 1.5 from the *Head* ſtands thus, G F=19.25—1.5=17.75 □=315.0625; then F O □= 2334.8224 — 315.0625 = 2019.7599 □ √ = 44.94

44.94 = F P — P K 32.82 = 12.12 + 12.12 = 24.24, the *Diameter* in the *Middle* of the *ſecond Inch*.

Note. You muſt now ſuppoſe FP to be moved nearer to AO 1.5 *Inch*, &c.

Having the Content of a Caſk *by inching*, as is ſhewn in *Page* 174, then if we find a *Number* which *multiplied* by the *Difference* between *Head* and *Bung*, and *that* Product *added* to the *Head Diameter* gives a *mean Diameter*, which being *ſquared* and *multiplied* by the *Length*, and *divided* by 359.05; if this, I ſay, gives the Content *equal* to the Content before found, *the Factor* is *true*, *elſe not*.

A General RULE for gauging a *Circular Spindle*.

A general Rule.

FIRST, *To* twice *the* Square *of the* Bung *Diameter*, add the Square *of the* Head *Diameter*, *and call* that Sum *the firſt* Number. SECONDLY, *To the* Square *of the* Length, add *the* Square *of the* Head *Diameter*, *and from* that Sum, *take the* Square *of the* Bung *Diameter*, *and* multiply *the* Remainder *by* fourteen *times the* Square *of the* Difference *of the* Head *and* Bung *Diameters*, *and that* Product *is a Dividend*; *then* multiply *the* Square *of the* Length *by* 35, added *to* five *times the* Square of *the* Difference *of the* Diameters, *and that ſhall be a* Diviſor; *the* Quotient *of this* Diviſion *is the* ſecond *Number*. *Then* multiply *the* Difference *of the* firſt *and* ſecond *Number by the* Length *of the Caſk*, divide *the* Product *by* 1077.15 *for* Ale, *and by* 882.354 *for* Wine, *gives the* Content *in Ale and Wine* Gallons *reſpectively*.

An Example.

Example. Let the *circular Spindle* [*Plate* III. *Fig.* 7.] be *Length* = K L 38.5, *Bung* = A B 31, and the *Head* = H I 23 *Inches*; How many *Ale* and *Wine* Gallons doth it hold?

Operation.

The Operation.

Twice the *Square* of the *Bung*	1922
Square of the *Head* Diameter *add*	529
Firſt Number	2451
Square of the *Length*	1482.25
Square of the *Head*, add	529.
The *Sum*	2011.25
Square of the *Bung*, ſubtract	961.
Remains	1050.25

Remains

Remains —— —— —— —— —— 1050.25
Fourteen times the *Square* of the *Diff.* Diameters —— x 896

630150
945225
840200

The *Dividend* —— —— —— —— —— —— 941024.00

Thirty-five times the *Square* of *Length* —— —— —— 51878.75
Five times the Difference of the *Square Diameters*, add 320.

The *Diviſor* —— —— —— —— 52198.75

52198.75) 941024.000 (18.3 Subtract from the
••
Firſt Number —— 2451.

Remains —— —— 2432.7
Length —— —— x 38.5

121635
194616
72981

Ale. 1077.15) 93658.950 (86.9 *Ale Gallons.*
Wine. 882.354) 93658.950 (106.1 *Wine Gallons.*

The *Content* the ſame as by *Inching* in *Page* 174.

☞ But the *Content* of the *circular Spindle* may be found *more expeditiouſly*, by finding a *mean Diameter* thus.

The RULE.

The Rule. *To the* Head *Diameter*, add two Thirds *of the* Difference *of the* Diameters, *and to this* $\frac{11}{60}$ *of* the Square *of the* Difference *of* the Diameters divided *by the* Head *and* twice *the* Bung *Diameter*, *and* this Sum *is the* mean Diameter *ſought*.

An Example. *Example.* Let the *Head* be 23, [*Plate* III. *Fig.* 7.] *Bung* 31, *Length* 38.5 *Inches*; What's the *mean Diameter* and *Content* in *Ale Gallons?*

Ope-

Operation. The Operation.

		By the *Factor*.
Head 23.		.68
$\frac{2}{3}$ of X 8 =	5.333	8
$\frac{11}{65}$ of 64, *viz.* 11.73÷85 =	.138	
Mean Diameter	28.471	5.44
	28.471	23.
	28471	28.44
	199297	
	113884	
	227768	
	56942	
Square	810.597841	
Length	x 38.5	
	4052989205	
	6484782728	
	2431793523	

359.05) 31208.0168785. (86.918 *Ale Gallons.* Ale.

As in *Page* 174 was found *by Inching*.

And now I have gone through all the *fix Varieties* of Casks, and found the *several Contents* to be

Of the Ale and Wine Contents of the fix Varieties of Casks.

	Ale.	*Wine.*	
1. The *Spheroid*	75.37	92.01	Gallons.
2. The second *Variety*	74.78	91.28	
3. The third *Variety*	74.55	91.01	
4. The fourth *Variety*	71.07	86.34	
5. The fifth *Variety*	68.82	84.02	
6. The sixth *Variety*	68.8	84.	

To gauge a Cask, *without regarding* to what *Variety* it belongeth.

See *Plate* I. *Fig.* 19.

Before this can be done, we must actually take the *mean Diameter*, as F G, *Plate* I. *Fig.* 19.

When you have taken the *Length* A B = 32.5, the *Bung* C D = 31, and the *Head* I K = 24 *Inches*, lay your *Gauging Rod* upon the *Bung* C, so that it may be *parallel* to A B; then will H L be = to A B the *Length*, and if *twice* H I be taken from C D, *the Remainder* will be = to I K the *Head Diameter*. Make E C = H E, and measure E F, whose *Double* being

ing taken from C D, there will *remain* F G the *mean Diameter*, which we will ſuppoſe to be 28.85, (as in the *Spheroid.*) And now to gauge the Caſk, this is

The RULE.

The Rule. *To the* Square *of the* Bung *Diameter*, add *the* Square *of the* Head, *and* four *times the* Square *of the* mean *Diameter*; multiply this Sum *by the* Length *of the Caſk*, *and* divide *by* 2154.3 *for* Ale, *(that is* twice 1077.15,) *and by* 1764.71 *for* Wine, *(that is* twice 882.354,) *and that is the Content reſpectively.*

An Example. *Example.* Admit the *Length* be 32.5, the *Bung* 31, the *Mean* Diameter 28.85, and the *Head* 24 *Inches*; What's *the Content* in *Ale* and *Wine* Gallons.

Operation.

The Operation.

The *Square* of the *Bung*	961
The *Square* of the *Head*	576
4 *times* ſquare of the *mean* Diam.	3329.29
The *Sum*	4866.29
The *Length*	32.5
	2433145
	973258
	1459887

Ale. 2154.3) 158154.425 (73.41 *Ale.*

Wine. 1764.71) 158154.425 (89.6 *Wine.*

By the *Sliding Rule.*

By the Sliding Rule. Set the *Gauge Point* 46.4 on D, to the *Length* on C = 32.5, and againſt the *Bung* 31, the *Head* 24, and the *mean* Diameter 28.85 on D, are 14.5, 8.6, and 12.5; then to *the Sum* of the *two firſt* 23.15 *add four times* the *third* = 50, and that *Sum* = 73.15 is the *Content* in *Ale* Gallons.

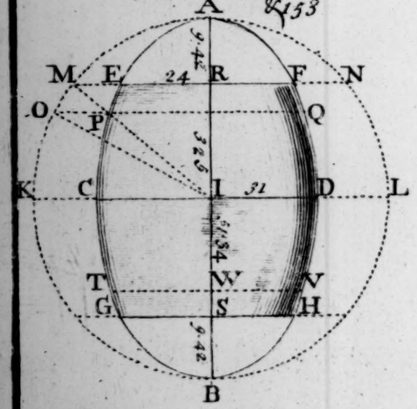
For *Wine.*

Set the *Gauge Point* 42 on D, to the *Length* on C = 32.5, and againſt 31, 24 and 28.85, are 17.7, 10.6, and 15.3, which Sum of the *two firſt*, *added* to *four times* the *third*, gives 89.5 *Wine Gallons.*

☞ It deſerves our Conſideration, That the preſent Practice of Gauging depends upon *aſſigning* to the *Caſk* or *Tun* to be gauged, ſome known Form, and that without *aſſuming* that Form, there's no taking one Step towards the computing its *Contents*; and therefore if we are not exact in our *Aſſumption*, it

Plate. 3.

Fig. 1
A Spheroid. page 115 & 153





page 118.

page 153.



Fig. 3
A Parabolic Conoid page 160

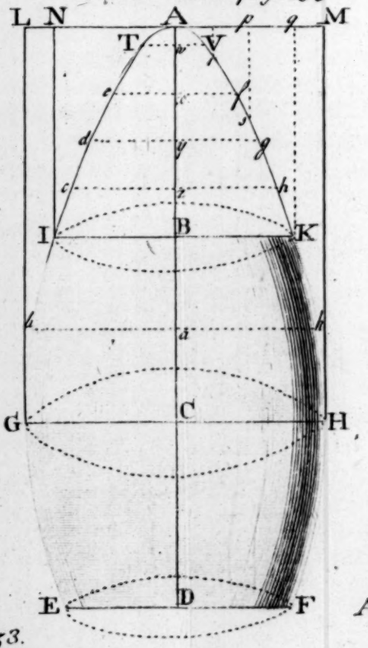


Fig. 4
A Hyperbolic Conoid
Page 89. & 164.

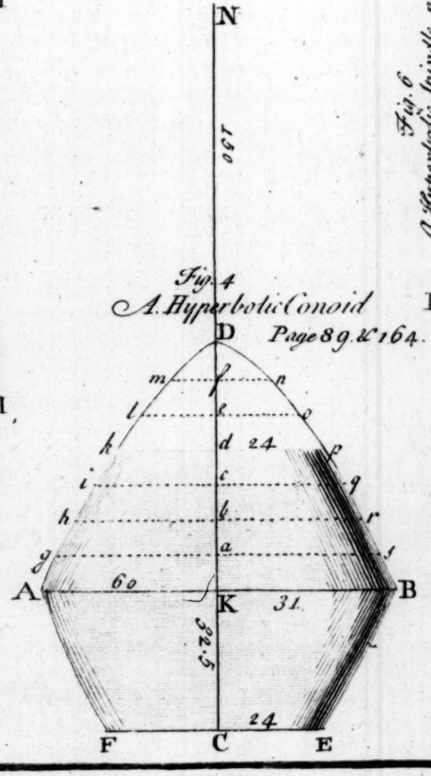


Fig. 6
A Hyperbolic Spindle. page 169

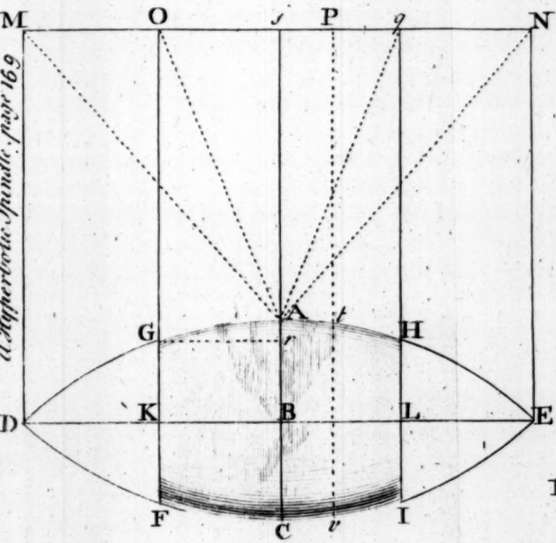
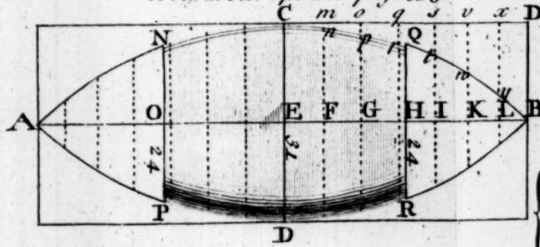


Fig. 2
A Parabolic Spindle. page 138



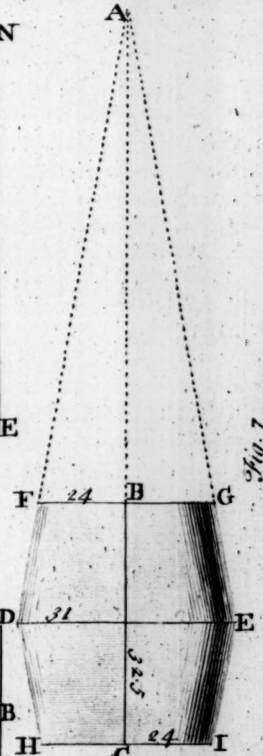
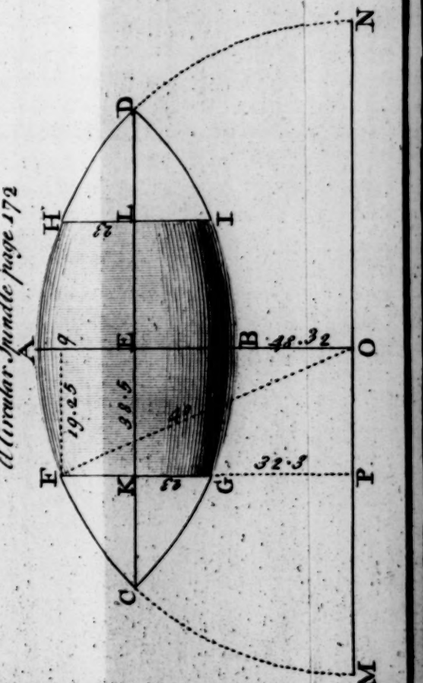


Fig. 5
{ The lower Frustum of two Conoids abutting upon one common Base D.E. } page 167

Fig. 7
A Circular Spindle page 172



it is impoſſible we ſhould ever be exact in aſcertaining the *Content*. Now, to ſuch as conſider theſe Matters, it muſt appear, that there never was any Caſk in the Shape of any one of thoſe *Solids* whoſe Names they bear; unleſs it can be ſuppoſed it could happed ſo by accident, *the Cooper* never intending them as ſuch. And though it ſhould be admitted that a Caſk may approach nearly in form to ſuch a Solid, yet what Officer ever had any manner of Rule to aſſiſt him in aſcertaining to which of *the Varieties* it belonged? Whereas, by the Help of a *fourth Dimenſion*, or *mean* Diameter, *viz.* a *Diameter* taken *in the Middle* between the *Head* and *Bung*, (from which *the Form* of the Caſk is in ſome meaſure to be determined) we are always certain to have the Content exactly true, or exceedingly near the Truth.

CHAP. XXVI.

To find the ULLAGE *of a* CASK.

Of Ullaging Caſks.

See *Plate* IV. *Fig.* 4.

Definition. THE *Ullaging* of a *Cask* is to find *how much* Liquor there is in it, when it is not *full*; which taken from the *whole Content* gives what it wants to fill it up; *or*, by knowing the *Vacuity*, and *ſubtracting it* from the *whole Content*, it leaves the *Ullage* or the Quantity of Liquor then in the Caſk. Definition.

Several Writers on this Subject have ſhewn how to *ullage a* Caſk by a *Table* of *Segments*, calculated for a *Cylindrical* Caſk; but becauſe that requires you always to have *that Table* ready at hand, and doth not always agree with the *Lines of Segment*, on the *Sliding Rule*, I ſhall here omit it, and ſhew how to effect the ſame by *Pen* and *Sliding Rule*.

N. B. In this Chapter I have confined myſelf to the *Spheroidal Cask* only, becauſe *in the Practice of the Exciſe* all Casks are conſidered *as ſuch*.

1. By the *Pen*, for a *lying Cask*. By the Pen.

The RULE.

Divide *the* wet *or* dry *Inches by the* Bung Diameter, *and if the* Quotient *be* under .500, ſubtract *from the* Quotient *a* fourth *Part of that* Quotient *which would make it* 500, *and the* Remainder *is a* Decimal Fraction. Multiply *by the* Content. The Rule.

2. *But if the* Quotient *be* above .500, add *to it* $\frac{1}{4}$ *Part of* the Exceſs *above* .500 *to the ſaid* Quotient; *which* Sum multiply'd

by the Cask's Content, *gives the Liquor in the Cask, if you took the* wet *Inches; but if the* Dividend *was the* dry *Inches, the* Product *is what it wants to fill it up.*

Example in a Spheroidal Cask.

Example, in a *Spheroidal Cask.*

Admit the { Length —— —— 32.5 / Bung Diameter — 31. / Wet —— —— 21. / Dry —— —— —— 10. } *Inches.*
Content —— —— 75.37 *Ale Gallons.*

What is in the Cask?

I demand what Drink there is in the Cask, and how many Gallons will fill it up?

Operation.

The Operation.

31) 21.000000 (.677419
····· .5 *subtract* †

4) .177419 (.044355
···· .677419 + *Quotient.*

The *Area* of the *Segment* — .721774
Ale. The *Content* of the *Cask* —— 75.37 *Ale Gallons.*

5052418
2165322
3608870
5052418

In the Cask. In the *Cask* 54.40010638 *Ale Gallons.*

What will fill it up?

2. For the *Vacuity,* or what will fill it up?

From .5
31) 10.000000 (.322580 —
····· .322580 *Quotient.*
4) .177420 (.044355 *Subtract.*

The *Area* of the *Segment* .278225
Ale. The *Content* of the *Cask* × 75.37 *Ale Gallons.*

1947575
834675
1391125
1947575

Wants *to fill* the *Cask* 20.96981825
Add what is in the *Cask* 54.40010638

Ale. The *Sum* is the *Cask's Content* 75.36992463 *Ale Gallons.*

Note.

† *N. B.* The .5 may be called .50, or .500, or .5000, or .50000, *&c. to* fill up the Number of *Decimal Places:* In the *Rule* above it is called .500.

Note. This *Rule* above being adapted to *Caſks nearer* to a *Cylindrical* Form, than to a *Spheroidal* Form; the *Segments*, and conſequently the *two Quantities*, *viz.* the *remaining* Liquor in the *Caſk* and the *Vacuity* will differ from thoſe found by *the Lines of Segments* on the *Sliding Rule*; becauſe *thoſe Segment Lines* are adapted to the *Spheroidal Caſk*. A Note.

2. By the *Sliding Rule*.

1. As the *Bung Diameter*, on the *Line* of *Numbers* on the *Little Slider*, marked N, By the Sliding Rule.
Is to 100, on the *Line of Segments*, marked S L;
So is the *wet* or *dry* Inches on the *Line of Numbers* N,
To a *Segment* upon S L; which reſerve.

2. As 100 upon A,
Is to the *Caſk's Content* upon B;
So is the *reſerved Segment* upon A,
To the *Quantity* of Liquor in the *Caſk*.

N.		N.	
Bung.	SL.	Wet.	SL.
As 31	*is to* 100,	*ſo is* 21	*to* 73.8.
A.	B.	A.	B.
As 100	*is to* 75.37,	*ſo is* 73.8	*to* 55.6.
Radius.	*Content.*	*Segm.*	*Ullage.*

For the *Vacuity* by the *Sliding Rule*.

Here you muſt work, in all reſpects, as you did for the *Ullage*; only inſtead of the *wet* Inches, you muſt now make uſe of the *dry* Inches.

Operation.

The Operation.

N.		N.	
Bung.	SL.	Dry.	Segm.
As 31	*is to* 100,	*ſo is* 10	*to* 26.2; reſerve this *Segment*.
A.	B.	A.	B.
As 100	*is to* 75.37,	*ſo is* 26.2	*to* 19.7, the *Vacuity*.
Radius.	*Content.*	*Segm.*	

In the *Caſk*, *add* 55.6

The *Sum* is the *Content* 75.3 *Ale Gallons*.

2. To find the *Ullage* of a STANDING Caſk.

To ullage a Caſk ſtanding upon one End.

See *Plate* IV. *Fig.* 5.

1. To calculate *any Diameter* between the *Bung* and *Head*, and by *ſuch Diameter* to find the *Quantity* of Liquor in the *Caſk* when it is *Part* empty.

The Rule.

The RULE.

1. *From* the Square *of the* Bung Diameter, ſubtract the Square *of the* Head Diameter, *and* divide the Square Root *of the* Remainder *by* half the Caſk's Length.

2. Multiply *this* Quotient *by the* Number of Inches *which the* Diameter *ſought is diſtant from the* Bung, *and call this* Product *your* Subducend.

Laſtly, *From the* Sqnare *of the* Bung Diameter, ſubtract the Square *of your* Subducend, *and* the Square Root *of the* Remainder *is the* Diameter *ſought*.

A ſecond Rule.

Or, ſay,

As the Square *of* half the Caſk's Length,
Is to the Difference *of the* Squares *of the* Bung *and* Head Diameters;
So is the Square *of* the Diſtance *from the* Bung *and* Liquor's Surface.
To the Difference *of the* Square *of* the Bung Diameter *and* Diameter *of the* Liquor's Surface.

An Example.

Example. Let us ſuppoſe a *Spheroidal Cask* poſited as before, the *Length* 32.5 Inches, the *Bung* 27, the *Head* 23, the *Content* of this *Cask* will be 59.95 *Ale Gallons*. Then let the *wet* Inches be 8.5; I demand *the Diameter* D F, and *how much Liquor* there is in the *Cask?*

The Operation.

For the *Diameter* D F.

H I = 27	A C = 23	B G = 32.5
27	23	B K = 16.25
189	69	B K = 16.25
54	46	8125
The *Square* 729	The *Square* 529	3250
Square 529	K G = 16.25 *Square* of B K.	9750
The *Differ.* 200	E G = 8.5	1625
		264.0625

7.75 *q* = 60.0625

Now ſay:

As 264.0625 *is to* 200, *ſo is* 60.0625 *to* 45.49.
Square B K. *Diff.* □ *Diff.* *Diff.*

From the *Square* of H I = 729.
Subtract 45.49

683.51 (26.1 = D F.
: : 5

Now,

Now, for the *Content* of the *Fruſtum* D F M L, by *Rule* II. *Page* 180.

To *twice* the *Square* D F = 1367.02
Add the *Square* L M = 529.

The *Sum* = 1896.02
The *wet* Inches 8.5

948010
1516816

1077.15) 16116.1700 (14.95 *Ale Gallons.*
The *Cask's whole Content* ... 59.95

There wants *to fill* the *Cask* 45.00

Or,

If the *Cask bulge but a little*, *divide* the *wet* or *dry* Inches by the *Cask's Length*, and if the *Quotient exceeds* 500, *add* to the ſaid *Quotient* $\frac{1}{10}$ *Part of the Exceſs*; but if it be *under* 500, *ſubtract* $\frac{1}{10}$ *Part of what it wants of* 500, and *the Sum* or *Remainder* is a *Decimal Fraction*, by which *multiply* the *Content* of the *Cask*, and the *Product* will be the *Quantity of Liquor* therein, if the *Dividend* was the *wet* Inches; but if it was the *dry* Inches, it gives the *Vacuity*, or what it wants to fill it up. Of Caſks a little bulging.

See *both Operations*. The Operations.

Wet.	.5000	From	*Dry.*	
32.5) 8.50000	(.2615	325) 24.00000	(.7384	
...		...	.5000	*Subtract.*
10.) .2385	(0.2385 +			
		10) .2384	(.02385 +	
The *Wet* Quotient	.2615	The *Dry* Quotient	.7384	
$\frac{1}{10}$ of *wants* of 5000 =	.02385 —	$\frac{1}{10}$ of *Exceſs*	.02385 +	
The *Segment*	.23765	The *Segment*	.76225	
The *Content*	59.95	The *Content*	59.95	
	118825		381125	
	213885		686025	
	213885		686025	
	118825		381125	
The *Ullage*	14.2471175		45.6968875	
The *Vacuity*	45.6968875			
The *Content*	59.9440050 *Proof.*			

The Ullage by the Sliding Rule.

For the Ullage *by the* Sliding Rule.

N. Radius. N. S.S.
Length. S S. Wet. Seg. A. B. A. B.
As 32.5 *is to* 100, *ſo is* 8.5 *to* 24. *As* 100 *is to* 59.95, *ſo is* 24 *to* 14.3
Radius. Content. Seg. Ulla.

For the Vacuity.

N.
Length. S S. Dry. Seg. A. B. Seg. B.
As 32.5 *is to* 100, *ſo is* 24 *to* 76. *As* 100 *is to* 59.95, *ſo is* 76 *to* 45.6
The *Ullage added* 14.3

The *Cask's Content* in *Ale Gallons* 59.9

A ſecond Way.

A *ſecond* Way to *ullage* a *ſtanding* Caſk.

FIRST, Find the *Diameter* at the *Surface of the Liquor*, thus: Find the *Middle* of the *Cask* by *girting* the *Staff* with a *String*, and *doubling* that *String*, by which means the *Middle* of the *Cask* at the *Outſide of the Staff* (or *Stave*) may be found; there make a *Mark*, and from this Mark ſet off the *Diſtance* of the *Liquor's Surface* from the *Bung upwards*, and there make another *Mark*: THEN laying the *Side* of a *Square* over *the Chime of the Cask*, that the *other Side* may juſt *touch* the *Bung*, meaſure the *Diſtance* between the *Side of the Square* and the *loſt Mark*, holding your Rule parallel to the Head of the Caſk; the *double* of *that Diſtance* ſubtracted from the *Bung Diameter*, leaves the *Diameter* of the *Liquor's Surface*. The *Diameter* being found, *multiply* the *Square* of the *middle* Diameter (of the *wet* Inches, but the *middle* Diameter of the *dry*, if you would have the *Vacuity*,) by the *wet* or *dry* Inches, *i. e.* (by *the leaſt* of them;) and *this Product divide* by 359.05 for *Ale*, and 294.118 for *Wine*, the *Quotient* will be the *Ullage*, if the Caſk is *not half full*, or very near it; but when that happens, the *mean Diameter* of the Caſk muſt be made uſe of inſtead of the *middle* Diameter.

An Example.

Example. Let the *Length* be 32.51, the *Bung* 27, the *Head* 23, *Diameter* on the *Surface* of the Liquor 26.1, the *Mean* 24.63, the *Content* 59.95 *Ale* Gallons, *wet* 8.5 Inches; What's the *Ullage?*

Operation.

The Operation. The Square of the mean Diameter 606.6369
The *wet Inches* E. G. ——————— 8.5

30331845
48530952

359.05)5156.41365(14.362 *ferè.*
....

By

By the *Sliding Rule*. By the Sliding Rule.

Set 18.94 the *Gauge Point* on D, to 8.5 the *wet Inches* on C, and againſt 24.6 the *middle Diameter* on D, is 14.4 on C, the *Ullage* required.

There might be a Line put on the Sliding Rule for *ullaging* of *lying* Caſks, to lie by the Side of the *Line of Numbers*, and to be ſo contriv'd, that 18.95 may anſwer to 10 on the *Line* N, and 460.58 anſwer to 1 on N for *Ale*; and for *Wine* 17.14 on the *new Line* to anſwer 10 on N, and 416.87 to anſwer 1 on N. And the *intermediate Diviſions* may be found thus:

To make the Line for $\left\{\begin{matrix}Ale,\\Wine,\end{matrix}\right.$ *divide* $\left\{\begin{matrix}359.05\\294.118\end{matrix}\right.$ by the *Square* of any given Number, look for the *Quotient* in Mr. *Abraham Sharp*'s Tables of *Segments*, and take out the *verſed Sine* anſwering thereto; then againſt the *verſed Sine* on the *Line* N, (as the two Lines lie even) is the *Point of Diviſion* on the *new Line* belonging to the ſaid Number, whoſe *Square* was the *Diviſor* above.

But this Line I am ſpeaking of being only for *lying* Casks, and to be uſed with the *mean Diameter*, until it has been actually produced and approved of by thoſe who are in Authority, there is no Probability of its ever being practiſed in the Exciſe.

CHAP. XXVII.

How to gauge WARM WORTS. Of warm Worts.

WHEN the Parliament laid on the Exciſe Duty, it was enacted, That for every *Ten Gallons* of *hot Wort* gauged, there ſhould be an Allowance of *one Gallon* for *Waſte*; for 'tis found by Experience, that every *ten Gallons* of *hot Wort* will be but *Nine* when cold.†

The country People commonly *cool* their *Worts* in *Braſs Pans*, whoſe *Diameter* is about 28 *Inches*, and *Depth* 10 *Inches* more or leſs; and theſe are commonly deeper in the *Middle*, than at the *Side* by an Inch or two; therefore with *your Rule* take the *Diameter* of the *Liquor's Surface*, by drawing out the *Slider B*, and pin it faſt. Then draw out the *other Slider* till it touch *the Side* of the *Pan*, and on its Inſide is ſhewn both the *Diameter* and *Area* in *Ale Gallons*; which *multiply* by the *Depth* (taken about *the Middle* between *the Center* and *the Side*) the *Product* will be the *Content* near enough the Truth.

Or,

On the Line C *and* D, *ſet* the Depth *to the* Ale Gauge-Point 18.94, *and againſt* the Diameter *on* D, *is* the Content *on* C.

If the *Wort* be cooling in an *Elliptical* Veſſel, (as I have often known) take the *croſs Diameters*, and work as in *the Ellipſis*

† See the Note on *Page* 138.

Page 81, for the *Area:* And becauſe now we are not only to find *the Area*, but alſo *the Content*; therefore *this Area, multiplied* by the *Depth*, gives *the Content*.

Or,

Find a Geometrical Mean *between the* two Diameters, *and then on the Lines* C *and* D *you may gauge it as* a Circle.

An Example. *Example.* Let *one* of the *Diameters* be 61 Inches, and *the other* 47.5, and the *Depth* 11.2 Inches; I demand how much *Wort* there is in the Tub?

1. For the Mean. For the *Mean*, as in *Page* 43.

D C C D
As 61 *is to* 61, *ſo is* 47.5 *to* 53.8 the *mean Diameter.*
Diam. Diam. Diam.

For *the Content.*

2. For the Content. D C D C
As 18.94 *is to* 11.2, *ſo is* 53.8 *to* 90.3 *the Content in Ale Gallons.*
G. Pt. Depth. Mean.

Of *Worts* in *ſmall* Veſſels. And when you find the *Wort* in *round Bowls*, you muſt gauge them *as Segments* of *a Globe*; but in Practice rather than the Officer ſhould take ſo much Trouble, as to ſtand gauging every little Veſſel, deſire the Brewer thereof to put ſeveral ſmall *Quantities together* into one Veſſel, and that will ſave both *the Officer* a great deal of Trouble, as well as do *the Owner* the more Juſtice.

When you inſert the *warm Gauge* in your *Stock Book*, you muſt put *w* over it, that ſo you may diſtinguiſh your *warm Gauges* from the other; that in caſting them up, you may make the proper Allowance of *One* Gallon in *Ten*, as the Law directs.

Of deducting one *Gallon* in 10 for *warm Worts.* *How to deduct* one Gallon *in* ten *from* warm Worts.

Now, the Deduction *of* one *Gallon in* ten *may be done by either by* Subtraction, *or by* Multiplication. *It is done by* Subtraction, *by ſetting* the Number *of* warm Gallons *down* twice, *the* under Number *muſt be placed* one Place *more to the* right Hand, *and* ſubtract *as uſual:* The Remainder *is the Quantity of Wort* to be charged.

Or,

Multiply *the Number of* warm Gallons by .9 *a* Decimal, *and the* Product *will give the* neat Gallons.

An Example. *Example.* Let the Gauge of *warm Worts* be 90.3 *Gallons*; What muſt be charged?

By *Subtraction* and *Multiplication.*

90.3	90.3
Subtract 9.03	*Multiply* .9
Neat Gallons 81.27	*Neat Gallons* 81.27

Note.

Note. In ſmall *Elliptical* Tubs, you may find the *Area* near enough in Practice: Thus, Of ſmall *Elliptical* Tubs.

Find, by drawing out the Rule, *the Area* of *the longeſt Diameter*, and in like manner the *Area* of *the ſhorteſt Diameter*; *half the Sum* of theſe *two* is *the Area* ſought.

How to find the Neat Gallons *at* one Operation *by the* Diameter *and* Depth.

Of the neat Gallons by the Diameter and Depth.

But if the *Wort* be in *open Tubs*, on which you have fixed *Areas*, take the *Diameter* and *Depth* (as above directed) on the Lines C and D. Inſtead of the *Ale Gauge-Point* 18.94, make uſe of 20; to which ſet the *Depth* on C. And againſt the *Diameter* on D, is the *Content* of *neat Wort* on C. As for Inſtance, In the *Elliptical Tub*, I found the *mean Diameter* to be 53.8, and the *Depth* 11.2; What are the *neat Gallons?*

D. C. D. C.
As 20 *is to* 11.2, *ſo is* 53.8 *to* 81.3, *the neat Gallons.*
G. Pt. Depth. Mean.

How to caſt up a warm Gauge *by the* Area *and* Depth.

To caſt up warm Gauges by the Area and Depth.

But if your *warm Gauge* be in a Tub, which you have in your *Stock-Book* upon *Areas*, then the two Lines A and B muſt be uſed. For as 1 upon A is to .9 upon B, ſo is *any Number* of *warm Worts* upon A to the *neat Gallons* upon B.

Suppoſe, as before, the *warm Gallons* are 90.3; What's the *Neat?* A new Multiplicator found.

A. B. A. B.
As 1 *is to* .9, *ſo is* 90.3 *to* 81.3, the *neat Gallons.*
Unity. Factor. Warm W.

Or,

Set 1 *upon* A *to* .9 *upon* B, *and* againſt 1 *upon* B *is* 11.1 *upon* A, *a* new Multiplier; *which will perform the ſame as* .9 *doth.* *But if you call the* .9 *nine* whole, *then will the* 1 *be* 10. *on* the Rule. Warm Gauges how caſt up.

A. B. A. B.
As 11.1 *is to* 10, *ſo is* 90.3 *to* 81.3 *neat Gallons*, as before.
Fact. Fact. Warm W.

And from what goes before, it is eaſy to conceive, that *warm Gauges*, which are taken in Tubs, which ſtand upon *Areas*, may be caſt up at *one Operation* by *the Rule*, with the Allowance of *one* Gallon in *ten* deducted.

Ex-

An Example.

Example. The *Area* of the *mean Diameter* 53.8 is 8.02, and the *Depth* 11.2 Inches; What's the *neat Gallons?*

A. B. A. B.
As 11.1 *is to* 11.2, *ſo is* 80.6 *to* 81.3, the *neat Gallons.*
Mult. *Depth.* *Area.*

By theſe *Rules* I have ſhewn how *warm Gauges* are caſt up, either by their *Areas* or *Diameter*, at *one Operation* by *the Sliding Rule.*

See *Plate* II. *Chap.* III.

CHAP. XXVIII.

Of reducing Ale to Wine Meaſure, *&c.*

How to reduce Ale Meaſure *to* Wine, Corn, *&c.* Meaſure, *& è Contra.*

MOST Officers of *Exciſe* make uſe of this Proportion, as 9 to 11, ſo is the *Wine Gallon* to the *Ale Gallon*; but this is not exact, as I prove by this Proportion.

Common Method not exact.

As 231 *is to* 282, *ſo is* 9 *to* $10\frac{228}{231}$, for which they take 11.

To find Multiplicators.

But to remedy this Imperfection, you may find *Multiplicators*, which will do the Work at *one Operation*, thus:

As 231 *is to* 282, *ſo is* 1 *to* 1.220779.
As 282 *is to* 231, *ſo is* 1 *to* .819148.

To find Multiplicators for the Malt Buſhel.

And for the *Malt* Buſhel *the Factors* are thus found:

As 282 *is to* 2153.4, *ſo is* 1 *to* 7.6256.
As 2150.4 *is to* 282, *ſo is* 1 *to* .131137.
As 231 *is to* 215 .4, *ſo is* 1 *to* 9 3092.
As 2150.4 *is to* 231, *ſo is* 1 *to* .107422.

By which I have found the *Factors* for *reducing*

Table of the Factors.

Of	*Ale* to *Wine*,	is 1.220779
	Wine to *Ale*,	.819148
	Ale to *Corn*,	.131137
	Corn to *Ale*,	7.625602
	Wine to *Corn*,	.107422
	Corn to *Wine*,	9.309177

Examples.

EXAMPLES.

In 231 Gallons of *Ale* how many Gallons of *Wine?*

Ale to Wine.

231 × 1.220779 = 282 *Wine Gallons.*

In

In 282 Gallons of *Wine*, how many Gallons of *Ale?* Wine to Ale.
282 x .819148 = 231 *Ale Gallons.*

In 282 Buſhels of *Malt*, how many Gallons of *Ale?* Malt to Ale.
282 x 7.625602 = 2150.42 Gallons of *Ale?*

In 231 Buſhels of *Malt*, how many Gallons of *Wine?* Malt to Wine.
231 x 9.309177 = 2150.42 Gallons of *Wine.*

And a *Ciſtern* that holds 80 *Buſhels* of *Barley*, will hold 610.04776 *Gallons* of *Ale.*

If inſtead of the *Corn* (or *Malt*) *Buſhel* you will have the *Corn Gallon*, it is no more than $\frac{1}{8}$ Part of 2150.42 *ferè*; which is * 268.802294375 *Cubic Inches*; as will be made more manifeſt when we come to treat of *Malt Gauging*. Of the Corn Gallon.

Note. By the above *Rules* you may find *Factors* for the reducing of *Ale*, *Wine*, *Malt*, &c to *Tallow*, *Soap*, or *Starch.*

CHAP. XXIX.

Of MALT-GAUGING.

Of Malt-gauging.

IN the Year 1696, when the Parliament laid a Duty of 6 *d. per Buſhel* upon *Malt* made in *England*, either for *publick* or *private* Uſe; it was then alſo ordered, that the *Buſhel* ſhould contain 18$\frac{1}{2}$ *Inches Diameter throughout*, and 8 *Inches deep*, with a *plain* and *even Bottom*; and that this ſhould be deemed a *legal Wincheſter Buſhel*, by which all *Barley* or *Malt* ſhould be gauged; the *Cubic Inches* in this *Buſhel* are thus found. A *Wincheſter* Buſhel what.

As 1 *is to* 3.14159, *ſo is* 18.5 *to* 58.119415, the *Circumference*. *Half* the *Circumference* 29.0597075 x $\frac{1}{2}$ *Diameter* 2.25 = 268.802294375 the *Area* x *Depth* 8 Inches = 2150.418355 the *ſquare Inches* in *a legal Wincheſter Buſhel.* See *Page* 48. The Cubic Inches how found.

Now, 2150.418355 x 1.2732406 = 2737.99995657121: But I have all along omitted the *Fraction*, and increaſed the whole Number *one Unite*; ſo that 2738 may ſafely be taken for *a Diviſor* for *a Circular* Malt Buſhel; and their *ſquare Roots* are 46.37, and 52.32 the *Gauge Points*, as inſerted in the *Table Page* 51. But that you may have a Buſhel and *its Parts*, with their *Diviſors* and *Gauge Points* ready at hand, take them in this Table. Of the Diviſor and Gauge Point for a Circular Malt-Buſhel. See *Page* 51.

A

* This 268.8 is the *Area* of the *Wincheſter Buſhel.*

A TABLE of *Diviſors* and *Gauge-Points* for *Corn* or *Malt*.

A Table of Diviſors and Gauge-Points for Malt, either ſquare or circular.

For a SQUARE.			*For a* CIRCLE.		
A *Buſhel* and *its Parts.*	*Diviſors.*	*Gauge-Points.*	A *Buſhel* and *its Parts.*	*Diviſors.*	*Gauge-Points.*
Buſhel	2150.4184	46.37	Buſhel	2737.9995	52.32
½ Buſhel	1075.2092	32.79	½ Buſhel	1368.9998	36.99
Peck	537.6046	23.18	Peck	684.4999	26.16
½ Peck	268.8023	16.39	1 Gallon*	342.2499	18.49
¼ Peck	134.40115	11.59	½ Peck	171.1249	13.08
⅛ Peck	67.20057	8.19	⅛ Peck	85.5624	9.25

See *Dry Meaſure*, on *Page* 6.

The Uſe of the Table.

The Uſe of the above Table is to examine any *Buſhel*, *half Buſhel*, *Peck*, &c. whether they be true Meaſure according to the Standard now remaining in his Majeſty's *Exchequer*: For, take the *Depth* and *Diameter* (ſuppoſe the *half Buſhel*) then, As the *Gauge-Point* 36.99 on D, is to the *Depth* on C, ſo is the *Diameter* on D to 1 on C, if it be true Meaſure.

Of gauging *Ciſterns*, *Couches*, and *Floors*.

I have ſhewn as I went on in this Treatiſe, how to find the *Area* and *Content* of every Figure in *Malt Buſhels*; therefore it needs not be here repeated: It remains now to ſhew how to gauge *Ciſterns*, *Couches*, and *Floors*, and from whence the *Charge* ariſes.

Of the ſwelling of Barley in the Ciſtern.

When the *Barley* is wet, or ſteeped in the *Ciſtern*, it ſwells, and is *about one fifth* Part more than when firſt put in; that is *four* Buſhels in *twenty* is to be allowed in the *Ciſtern* and *Couch*; and to find a *Multiplicator* to give the *neat Duty* from *Ciſtern* or *Couch*, this is

The Rule.

The RULE.

$20 - \frac{1}{5} = \frac{4}{5}$ whoſe Decimal is .8.

See the Work at large.

From 20
Subtract 4 equal to $\frac{1}{5}$.

Remains 16 equal to $\frac{4}{5}$, which is reduced to a Decimal

Thus:

5) 4.0 (.8

So

* Becauſe *two* Gallons are *one* Peck, I call the *Half Peck* in the *Circular* Meaſure *one Gallon*.

So that any Number of *groſs* Buſhels from *Ciſtern* or *Couch multiplied* by .8, will give the *neat* Buſhels.

Example. Suppoſe a *Ciſtern's Length* 85 Inches, *Breadth* 54.4 Inches, and *Depth* 36 Inches, and juſt before the draining of it I have a Gauge exactly full: What's the *Content* and *neat Buſhels?* An Example.

$85 \times 54.4 \times 36 = 166464$ *ſolid* Inches, *divide* by 2150.4 $= 77.4$ Buſhels *groſs*, $\times .8 = 61.92$ *neat* Buſhels.

By the *Sliding Rule.*

As *the Depth* of the *Ciſtern*, &c. on the *Line* MD,
Is to *the Length*, or *Breadth*, on the *Line of Numbers* on the *Slider* marked N;
So is *the Length*, or *Breadth*, on A,
To *the Content* on B. By the Sliding Rule.

MD.	N.	A.	B.
Depth.	*Length.*	*Breadth.*	*Content.*

As 36 *is to* 85, *ſo is* 54.4 *to* 77.4 Buſhels *groſs.*

The ſame Order is to be obſerved in caſting up *Couch* and *Floor-Gauges* by *the Rule.*

Note. You are to ſet your *Ciſterns* upon *Areas*, with the *Length, Breadth, and Depth*, in the proper Column in your *Malt-Book*, thus: A Note.

Depth	36	} *Inches.*
Length	85	
Breadth	54.4	
Area	2.15	*Buſhels.*

Now, the *Area multiplied* by the *Depth* 36 $= 77.4$ the *Content* as before.

How to gauge *a* Couch.

With your *Tape* take *the Length* and *Breadth* of the *Couch*, which you muſt inſert in your Book; but before you take your *Depth*, obſerve, that Corn being a dry Subſtance, the *Top of the Couch*, &c. does not always, like what is liquid, carry an *even Surface*, Care muſt therefore be taken that the *Barley* or *Malt* lie even: Then with your *Dimenſion Cane* and *Braſs*, take *ſix, eight*, or *ten Depths*, (as ſhewed in gauging the *Cooler*, *Page* 131) more or leſs, as you ſhall ſee occaſion. *Dividing the Sum* of them by the *Number* of *Depths*, gives a *mean Depth*; which inſert in your *Malt-Book*. How to gauge a Couch.

How to know when it is a Couch, *and when a* Floor.

When you come into the *Malt-Houſe*, you muſt enquire of the Maltſter *how long* the Barley has been out of the Ciſtern? If it is under *thirty* Hours, it is deemed by the Law *a Couch*, which

What a *Couch*, and what a *Floor*

See the Inſtructions relating to the Duty on Malt *Art.* 4.

which muſt be gauged, and the Allowance of *four* Buſhels in *twenty* given, as was ſhewed in the Ciſtern: But if he declares the Barley has been out of the Ciſtern more than *thirty* Hours, it is to be taken as *a Floor*, and the Allowance made of *ten* Buſhels in *twenty*: And then it remains *a Floor* till it comes to *the Kiln* to be dried.

A Multiplicator for neat Floor Buſhels.

In order to find a *Multiplicator* that will give the *neat Buſhels* from *the Floor*; obſerve that 10 Buſhels in 20 being allowed for *the ſpritting* or *growing* of the Malt, it will be this Decimal, .5 for a *Multiplier*, that will *reduce* the *groſs* Buſhels on *the Floor*, to the *neat* Buſhels.

How to take Floor Gauges.

How to take Floor Gauges.

Floor Gauges are taken in all reſpects as a *Couch Gauge* before directed; and caſt up by the *Sliding Rule* the ſame way as *a Couch*, by the M D *Line* above taught. Then let us ſuppoſe a *Floor Gauge*, when caſt up and *multiplied* by .5, to *exceed* the *Ciſtern*, or *Couch Gauge* of the *ſame* Barley, when *multiplied* by .8, then I ſay the Charge ariſes from ſuch *Floor*; but when the *Ciſtern* or *Couch is moſt*, then you muſt make the Charge from that accordingly.

Whence the Charge will ariſe.

How to diſtinguiſh whether the Charge *will ariſe from* the Ciſtern, the Couch, *or* the Floor Gauge.

But the uſual way of finding whether *the Amount* of the *Ciſtern* or *Couch*, (allowing 4 in 20, that is $\frac{1}{5}$ Part) or the *Amount* of the *Floor*, (allowing 10 in 20) makes the *beſt Charge*, is to *multiply* the *Ciſtern* or *Couch* Buſhels by 1.6, and the *Product* will be a Number of *Floor Buſhels, equal in Charge* to thoſe *Couch*, &c. Buſhels.

Or,

Another Rule.

Multiply the *Floor Buſhels* by .625, and *the Product* will be the Number of *Couch Buſhels* equal in Charge to thoſe *Floor Buſhels*.

How the two Factors *are found.*

How the Factors are found.

Theſe *two Multiplicators* are found thus, *viz.* the Allowance of 4 in 20 is found before to be *equal to* .8, and of 10 in 20 to .5. Therefore,

As .5 *is to* .8, *ſo is* 1 *to* 1.6. And *as* .8 *is to* .5, *ſo is* 1 *to* .625.

Or, by *dividing* of *Unity*, thus:

.625) 1.0000 (1.6 1.6) 1.0000 (.625.

Now,

Now let us ſuppoſe a *Floor Gauge* to be 100.8 *Buſhels*, and the ſame from the *beſt Couch Gauge* 63.6; I demand from whence *the Charge* will ariſe?

100.8 x .625 = 63 Buſhels, which *is leſs* than *the Couch*; therefore *the Charge* doth ariſe from *the Couch*.

How to gauge circular Ciſterns, Couches, *or* Floors.

Of Circular Ciſterns, Couches, and Floors.

It frequently happens that Maltſters wet their Barley in *round* or *elliptical* Tubs; which, if it be regular, you may ſet upon a *mean Diameter*, otherwiſe upon *two* or *three*, as you ſhall ſee occaſion: And if it is *elliptical*, you muſt take the *croſs Diameter*, and inſert them in your *Malt-Book* as a *By-Tub*.

Then if it is *a Circle*, *the Square* of *the Diameter*, *multiplied* by .0003653, or *divided* by 2738 (ſee *Page* 51.) will be *the Area* in *Malt Buſhels*; which multiplied by *the Depth*, gives *the Content*.

How to gauge a By-Tub: *By the* Sliding Rule.

To gauge a *By-Tub*.

On the Lines C and D.

As the *Gauge-Point* on D = 52.32, marked M R,
Is to *Unity* on C;
So is *the Diameter* on D,
To *the Area* on C.

Here *note*, That if *the Diameter* be *leſs* than 52.32 Inches, then *the Area* will *be leſs* than *one* Buſhel.

For *the Content*.

As the *Gauge-Point* 52.32 on D,
Is to *the Depth* on C;
So is *the Diameter* on D,
To *the Content* in *Malt Buſhels* on C.

The Uſe of the *Square Gauge-Points* in the TABLE, *Page* 51, is this:

Of Square Gauge Points.

Having a *Square* or *Oblong* Ciſtern, Couch or Floor, *the Gauges* thereon depending may be caſt up by *the Sliding Rule* on the Lines C and D.

For as *the Gauge-Point* 46.37 on D, marked S R,
Is to *the Depth* on C;
So is *the Side of the Square* (or *Mean* if an *Oblong*) on D,
To *the Content* in *Malt-Buſhels* on C.

An Example. *Example.* In the Ciſtern above (which we gauged by the Line of *Malt Depth*) whoſe *Length* 85, *Breadth* 54.4, *Depth* 36 Inches; What's *the Content?*

Firſt, the *Mean* between the *Length* 85, and *Breadth* 54.4, is 68. Then

D C D C
As 46.37 *is to* 36, *ſo is* 68 *to* 77.4, *the Content* in *Malt*
G. Point. Depth. Mean.
Buſhels as before, when caſt up by the *Line* called the *Malt Depth*, marked MD.

How the Officers of Exciſe *are* to money *their* Charge.

How to money your Charges. The Officers of his Majeſty's Revenue of Exciſe make up their *Accompts* againſt each *Sitting Day*, by help of certain *Tables*, (which you'll find in *Chap.* V. of the *Second Part* of this Work) one of which is calculated for *the Ciſtern* and *Couch Gauges*, and the other for *the Floor*, each of them giving the proper Allowance.

Charg'd from the	Couch	63	*l.* 1	5	2	1.6
	Floor	100	*l.* 1	5	0	0
	Caſh		*l.* 2	10	2	1

A Note. *Note.* The *Decimal Parts* of a *Buſhel* are never charg'd, but *carried forward* to the next Book.

A Caution. The Law having given the Allowance of *four* Buſhels in *twenty* on the *Ciſtern* and *Couch Gauges*, and *ten* in *twenty* on the *Floor*; therefore if an Officer do not advance in his Gauges according to *theſe Proportions*, he muſt expect to incur the Honourable Commiſſioners higheſt Diſpleaſure. How ſhall he *examine* his Gauges in this Caſe? This is

The RULE.

The Rule for examining your Gauges. Subtract *the* firſt *Ciſtern Gauge from the* beſt *Gauge*. *If this Difference be* $\frac{1}{5}$ *of* the firſt Gauge in the Ciſtern, *then you have* advanced *according to Law*; *otherwiſe not*: *But in this Caſe you ought to take the* firſt Gauge *in the Ciſtern of the* dry Barley, *or very ſpeedily after it is* wet: *And if the Barley be* damaged, *the* beſt Gauge *will not advance* $\frac{1}{5}$ *above the* dry Barley; *but if the Barley be* very good, *it will advance above* $\frac{1}{5}$ *Part, as I have often by Experience found to be true.*

An Example. *Example.* Admit a Ciſtern whoſe *Area* is 86, in which you have *a Gauge* of Barley *one* Hour wet, *Depth* 16, *Content* 13.8 *Buſhels*, and the *beſt Gauge* 15 *Buſhels* from the *Couch*; I demand what is *the Advance?* Whether $\frac{1}{5}$ according to Law, *more* or *leſs?*

15—13.8 = 1.2, which ſhould be 2.77 = $\frac{1}{5}$ of 13.8, which is *too little* by 1.57. For this you muſt write *a Reaſon* of *damaged* Barley, or *the like*; otherways your *Supervisor* will Diary you for ſuch a Fault.

By the *Sliding Rule*.

Firſt, Take $\frac{1}{5}$ of 1, which is .2, by which *multiply* the *firſt Ciſtern Gauge*, and the *Product* is $\frac{1}{5}$ of it. By the Sliding Rule.

A. B. A. B.

As 1 *is to* .2, *ſo is* 13.8 *to* 2.77, this *added* to 13.8 = 16.57, which the *beſt* Gauge ſhould have been, had it *advanced four* Buſhels in *twenty*, or $\frac{1}{5}$.

How the Caſh-Tables *are made.*

The *Caſh Tables* for *moneying* the *Ciſtern* and *Couch Gauges*, are thus made: Caſh-Tables, how made.

Buſh. d. Buſh. d. q.

If 1 : 6 : : .8 : 4 : 2.2, this is the *firſt Number* in the *Table*; which *added continually* to itſelf, and ſo on, compleats that *Table*.

For the *Floor*.

Buſh. d. Buſh. d.

If 1 : 6 : : .5 : 3, this is the firſt Number in the *Table*, which *added continually*, compleats that Table.

Every one making *Malt* for his Family-Uſe only, has Liberty to *compound* at 5*s. per Head*.

See *Part* II. *Chap.* IV.

CHAP. XXX.

Of CANDLES. Of Candles.

THE Duty upon *Candles* made of *Tallow* is a *Penny a Pound*, and upon *Candles* made of *Wax*, *Eight-Pence a Pound*, and all other *Candles imported*, made of *Tallow* or *Wax*, are liable to the *ſame Duty*, viz. the *firſt* of *May* 1710, *Tallow Candles* became chargeable with a Duty of a *Half-penny a Pound*, and *Wax Candles* with a Duty of *Four-pence a Pound*; and upon the 25th of *March*, 1711, the former became ſubject to an *additional* Duty of a *Half-penny a Pound*, and the latter to an *additional* Duty of *Four-pence a Pound*. The Duty on Wax and Tallow Candles. 8 Anne, *Chap.* 9. 9 Anne, *Chap.* 6.

Note. Small Ruſh-Lights once dipt, are not chargeable. Ruſh-Lights.

The above Duties were laid for 32 Years, but were afterwards made perpetual.

Candles exported. 3 Geo. I. *Cap.* 7.

All *Candles* exported are to be re-allowed the Duty paid; but ſuch *Candles* being re-landed, are forfeited.

Hours for working.

The Statute Hours *for working, under the Penalty of* Ten Pounds, *are from* 7 *in the Morning till* 5 *in the Evening, betwixt the* 29*th of* September *and the* 25*th of* March; *and from* 5 *in the Morning till* 7 *in the Evening, betwixt the* 25*th of* March, *and the* 29*th of* September.

The Cubic Inches in a Pound of Tallow. See *Page* 47.

It has been found that 30.28 *Cubic Inches* are contained in *one Pound* of *dry Tallow Avoirdupoiſe*, and therefore is a *Diviſor* in all *ſquare Meaſure*; which *multiplied* by 1.2732406, produceth 38.55, the *Diviſor* for *circular Meaſure*, whoſe *Square Root* is 6.208, the *Gauge Point* on the *Sliding Rule*, and is marked with T. P. on the *Line* D, ſignifying *Tallow Pounds*. And there are contained in an *Ale Gallon* 149 *Ounces* of *dry Tallow Avoirdupoiſe Weight*; ſo that if any *Gauge* of *Tallow* be caſt up as an *Ale Gauge*, the *Total multiplied* by 9.3125, (which are the *Pounds* and *Parts* in a *Gallon*) will give the *Content*: *This Number* 9.3125 is found thus:

oz. lib. oz. lib.
As 16 *is to* 1, *ſo is* 149 *to* 9.3125.

Note. That 108 *Pounds* can only be charged in *Candles* for every 112 *Pounds* of *Tallow miſſing*; therefore *multiply* the *Quantity* of *Tallow miſſing* by this *Decimal* .964, and the *Product* will give the *neat Weight* or *Quantity* that is to be charged.

This *Decimal* .964 is thus found:

As 112 *is to* 1, *ſo is* 108 *to* .964.

A Note.

Note. Any Family may *compound* at 1*s. per Head*, for Candles made for their own Uſe.

See the *Second Part*, Chap. XI.

CHAP. XXXI.

Of the Diſtillery.

Of the DISTILLERY.

It is the moſt curious Part of Gauging.

DISTILLERY is the very *Apex*, or higheſt Pitch that can be arrived at by Man in Gauging; for it is not only required, that he ſhould be very expert in *Gauging*, but alſo in the manner of *Book-keeping*, and making up the Accompts; which is more difficult than any other Branch of this Art.

Some Officers never inſtructed in it.

Hence, becauſe every *Officer* of Exciſe (I well know) is not inſtructed in *the Diſtillery*, neither has an Opportunity of ſeeing any

any thing of it in all his Days; by what follows he may come to have ſome ſmall Notion, if not become a perfect Maſter of that abſtruſe Art.

The *Materials*, &c. uſed by *Diſtillers*, are *characteriz'd* as follow:

For Melaſſes — — M.	*There are ſome other Characters, viz.* For a Still.
For Malt — — — G.	
For Cyder — — — C.	
For Sugar-Water — S. W.	Not come down — — ⊙
Scums — — — S.	Newly come down — — V
For Foreign Fruit —— F.	About half down — — -
For Brewers Waſh or Tilts B.	Near off — — — Λ
For Wine — — — W.	Quite off — — — Off.
For Low Wine — — L W.	

Characters for Diſtiller's Materials.

How to *gauge* a *Still*, has been ſhewn on *Pages* 143 and 146.

By the *Tenth* and *Eleventh* of *William* III. and *Fourth* of *Anne*, 'tis Enacted:

Directions for charging Diſtillers.

That all Waſh made of Melaſſes for Diſtillation ſhall be charged with one fourth Part into Low Wines, and two third Parts of ſuch Low Wines into Spirits.

Alſo, That all Waſh from Malt or Malted Corn ſhall be charged with one fourth Part into Low Wines, and three fifth Parts of ſuch Low Wines into Spirits.

And, That all Waſh made from Cyder or Perry be charged with one fifth Part into Low Wines, and one half ſuch Low Wines into Spirits.

All Spirits made or drawn by any Diſtiller from any Mixture of Spirits with any Kind of Waſh (except Common Water) ſhall be deemed and taken to be Low Wines, and ſhall be charged with the Duties already ſet and impoſed upon Low Wines drawn from Foreign Materials.

Gaugers ſhall keep an Account of all Melaſſes Waſh in Diſtiller's Hands; and upon Decreaſe thereof, charge ſo much Low Wines as ¼ Part of the Waſh ſhall amount to; and charge him with ſo much Proof Spirits as two thirds of the Low Wines ſo charged ſhall amount to.

Gaugers ſhall alſo charge ¼ Low Wines from the Decreaſe of Malt Waſh, and three fifths of Spirits from ſuch Low Wines; and one fifth of Low Wines from the Decreaſe of Cyder or Perry Waſh; and ¼ of Spirits from ſuch Low Wines.

Note. Melaſſes Waſh decreaſes ¼ into Low Wines, and ſuch Low Wines two thirds into Spirits.

Officers wittingly charging Low Wines as from Corn, knowing them to be ſuch, forfeit their Office and 10 s. per. Gallon.

Hours for carrying out Liquors, 7 & 8 *Will.* III.

The Statute Hours for Diſtillers carrying out any Liquors, under the Penalty of 10 l. *are from* 3 *in the Morning to* 9 *at Night betwixt the* 25*th of* March *and the* 29*th of* September; *and from* 5 *in the Morning to* 8 *at Night, from the* 29*th of* September *to the* 25*th of* March.

Of the Fractions marked in the Act.

The *Fractions* mentioned in the *Act* are *theſe*, and are alſo reduced to Decimals.

Vulgar Fractions $\frac{1}{4}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{1}{5}$, $\frac{1}{2}$ the *Decimals* are .25, .666, .6, .2, .5 *Factors.*

That is,

From *Malted Corn* $\frac{1}{4}$ and $\frac{3}{5}$.
From *Cyder* and *Perry* $\frac{1}{5}$ and $\frac{1}{2}$.
From *Melaſſes* $\frac{2}{3}$ and $\frac{3}{5}$.
From all *Engliſh* Materials, as *Cyder, Perry, Turnips*, &c. $\frac{1}{5}$ and $\frac{1}{2}$.

For *Melaſſes Waſh.*

Now you are to obſerve that any Quantity of *Melaſſes Waſh*, being *multiplied* by .25, gives *Low Wines*; and *Low Wines multiplied* by .666, give *Spirits.*

For *Malt Waſh.*

And any Quantityof *Malt Waſh* being *multiplied* by .25, gives *Low Wines*; and ſuch *Low Wines* being *multiplied* by .6, give *Spirits.*

For *Cyder* and *Perry Waſh.*

Laſtly, And any Quantity of *Waſh* from *Cyder* or *Perry*, being *multiplied* by .2, gives *Low Wines*; and ſuch *Low Wines multiplied* by .5 give *Spirits.*

The Reader will find all theſe Rules exemplified in the Courſe of this Chapter.

How to make Surveys.

How the Officer is to make his Surveys.

The *firſt Thing* that you do in the *Morning*, is to go to the *Still-Houſe* to ſee if they be at work. If they *be not*, then in the *Still Column* of your *Minute-Book*, write *ſilent*. And then take an Account of the *Waſh Backs*; and put the *Depths* down diſtinctly in their *proper Columns.*

In the Morning, if you find the Diſtiller at *work*, obſerve what he is ſtilling, whether *Melaſſes Waſh*, *Malt Waſh*, or *Low Wines*. If he be diſtilling *Waſh*, then for every Still that there is at Work, put *A* in that *Still's Column*, if *two* Stills at work, put two *A*'s thus, *A A:* But if he be ſtilling *Low Wines*, then for every Still at work, write ſo many *B's:* But if *two* Stills at work, the *one* ſtilling *Melaſſes Waſh*, and the *other* ſtilling *Low Wines*, then write *A* and *B*, When you find them diſtilling *Spirits*, which is called *Rectifying*, under *that* Still write *R*. But you are not to make any Charge

Charge from any ſuch Spirits diſtill'd, tho' it may do well to take an Account of what the Spirits *come out of*, and alſo what they *go into*, when diſtill'd. When you find them ſtilling *Waſh*, put the Number of the *Waſh Back* down in your *Minute Book*, and the *Depth* under it thus $\frac{4}{12}$, that is *Waſh* come out of *Number* 4, and there remains 12 Inches deep in the *Waſh Back* when the Still was charg'd or fill'd. Theſe are inſerted in the *Column* entitled *Waſh out of*; and then put alſo the *Depth* of the *Waſh Back* down in its proper *Column* under *Waſh Back*.

Of Foot Walks.

In *Foot Walks*, they uſually make *four* Surveys *every Day*, *(work or not.)* To each Survey you muſt enter *the Hour*, and alſo *the Stock* of the *Waſh Backs*, and enquire what *Low Wines* go into it. Take the *Depth*, and put it under *the Number* it goes into thus, $\frac{12}{3}$. So you muſt do every Survey; and when you find *the Still off*, write in *that* Still's Column, *off*.

How to caſt up your Day's Survey.

How to caſt up a Day's Work.

Every Night you are to take your *laſt Survey* out of your *Minute Book* into your *Stock Book*, with the *Day* of the *Month*, *Week* and *Hour*, and the *Depth* of *each Waſh Back*, and place them in their *proper Columns*; and alſo the *ſame* Letter of the *Alphabet* that is in your *Minute Book*, with the *Depth* of the *Faints*, if any; and alſo *the Depth* of the *Low Wines*.

Now having the *laſt Survey* tranſcribed from your *Minute Book* to your *Stock Book*, then the next thing is to place *the Waſh* taken out of the *Minute Book* in its *proper Place*, and *multiply* the *Depth* of *Decreaſe of Waſh* by the *Area* of the *Back it went out of*; the *Product* is the *Decreaſe of Waſh* that went out of *that Back*; which place in the *Minute-Book* under *Decreaſe of Waſh*, over-againſt the Caſk it went out of. Do thus by *all the Backs* that *Waſh* went *out of that Day*.

Then place *the Number* of the Caſks that *Low Wines came into that Day* in your *Minute Book*. Which done, find what *Low Wines* came into that Caſk by *ullaging* of it, which place in your *Minute Book* over-againſt the Caſk that *it went into*. Do ſo by all the Caſks that *Low Wines go into that Day*, and *add all* the *Increaſes* of *Low Wines*, which together give you the *Day's Work*.

How to make your Charge *of* Melaſſes Waſh.

Of charging Melaſſes Waſh.

Having caſt up your Day's Work, and found the *Decreaſe of Waſh*, and *Increaſe of Low Wines*, and place them in their *proper Columns* in the *Minute Book*, and from thence *tranſfer'd* them to your *Stock Book*: The next thing is

How to make your Charge.

How to make your Charge.

Find $\frac{1}{4}$ part of your *Decreaſe* of *Waſh*, and if that be *leſs* than the *Increaſe* of *Low Wines*, then will the *Increaſe* of *Low Wines* be your *Charge*, and you *muſt* write *per Gauge* in the Column where you give the *Reaſon* for the *Charge*. But if $\frac{1}{4}$ of the *Decreaſe* of Waſh *exceeds* the *Increaſe* of Low Wines, then will that be your *Charge* of *Low Wines*; and ſo much as $\frac{1}{4}$ of the Waſh *exceeds* the Increaſe of Low Wines, the $\frac{2}{3}$ of ſuch Exceſs is *preſumed* to be *decreaſed*, and muſt be *charged* as ſo much *Spirits* of the ſecond Extraction.

Example.

Example. Admit the *Decreaſe* of *Waſh* be 334.6 *Gallons*, and the *Increaſe* of *Low Wines* 75.7 *Gallons*.—Since $\frac{1}{4}$ of 334.6 is 83.65, and *more* than the *Increaſe* of *Low Wines*, that muſt be your *Charge* of Low Wines: And the *Difference* between 83.65 and 75.7 is 7.95, which is *preſumed* to be *decreaſed*, and is to be enter'd in the Column for the *Decreaſe* of *Low Wines*, thus, *pre* 7.95; $\frac{2}{3}$ whereof is 5.3, which muſt be *charg'd* as *Spirits*.—But here let it be minded, that the 75.7, the *Increaſe* of *Low Wines*, are ſuppoſed to remain in *Stock*, which when *decreaſed* you muſt charge the $\frac{2}{3}$ thereof into *Spirits*, which you will find to be 50.46; but if the *Decreaſe* was found on the *ſame Day* as the *Increaſe*, then muſt your *preſumptive* and *viſible* Decreaſes be *added* together, and $\frac{2}{3}$ of the Sum be taken for your *Charge* of *Spirits*. — In this Inſtance it will be 7.95 + 75.7 = 83.65; $\frac{2}{3}$ of which *is* 55.76, which is the ſame as 5.3 + 50.46.—But here *take notice*, that if your *Gauge* of Spirits *exceed* the $\frac{2}{3}$ of the *Decreaſe* of Low Wines, then will your *Charge* ariſe from *Gauge*; but in this Caſe you muſt be very exact in adjuſting the Proof.

To charge from Malt-Waſh.

How to make your Charge *from* Malt-Waſh, *which is* one Fourth *into Low Wines, and* three Fifths *into Spirits.*

There is no other Difference in *bringing forward* your Charges between *Malt-Waſh* and *Melaſſes-Waſh*, than to obſerve the different *Proportions* which the Law hath fixed to aſcertain the *Lengths* of each; but altho' the above Example may be ſufficient to ſhew the general Method in all Caſes that can occur, yet it may not be amiſs to give an *Example* from *Malt-Waſh*, &c.

Example.

Example. Let the *Decreaſe* of *Waſh* be 406 *Gallons*, and the *Increaſe* of *Low Wines* 98.4; what will be the Charge of *Low Wines* and *Spirits*?

$\frac{1}{4}$ of 406 is 101.5, which *exceeds* 98.4 by 3.1; this 3.1 is *preſumed* to be *decreaſed*, and therefore muſt be enter'd in

in the Column for *Decreaſe* of *Low Wines*; $\frac{2}{5}$ Parts whereof, or .6, *(the common Multiplier)* which is the ſame, is 1.86 for the *Charge* of *Spirits*.—But here as before, in the Example for *Melaſſes-Waſh*, with this Difference only, that here $\frac{1}{3}$ of 98.4 muſt be taken upon the *Decreaſe*, as in the other $\frac{2}{3}$ for your *Charge* of *Spirits* upon whatever Day the *Decreaſe* is made, and in this Inſtance it will be 59.04 *Gallons* of *Spirits*.

How to make a Charge *from* Engliſh Materials *ſuch as* Cyder *and* Perry, *which are* one Fifth *and* one Half. To Charge from *Engliſh* Materials.

All that is to be obſerv'd in this Caſe is, that inſtead of taking $\frac{1}{4}$ and $\frac{2}{3}$, and $\frac{1}{5}$ and $\frac{3}{5}$ of the *Decreaſe* of *Waſh* as above, you muſt here take $\frac{1}{3}$ of the *Decreaſe* of *Waſh* for your *Charge* of *Low Wines*, and $\frac{1}{2}$ of the *Low Wines* into *Spirits*, if you cannot *charge more* of either by *Gauge*.

Example. Suppoſe the *Decreaſe* of *Waſh* be 357.5 *Gallons*, and the *Increaſe* of *Low Wines* 68.7; what will be the *Charge* of *Low Wines* and *Spirits*? An Example.

Here $\frac{1}{5}$ of the *Decreaſe* of *Waſh* is 71.5, which *exceeds* the *Increaſe* of *Low Wines* by 2.8, which is *preſumed* to be *decreaſed*, the $\frac{1}{2}$ of which is 1.4 for the *Charge* of *Spirits*.—But upon the *Decreaſe* of 68.7, the Low Wines in *Stock*, you muſt charge its $\frac{1}{2}$ into *Spirits*, viz. 34.35.

N. B. *Tho' I have taken Notice above of the* Decimal Parts *of* Waſh, *yet in Practice they are never regarded; and therefore, the* Decimal Parts *of* Low Wines *will always be* .25 .5 .75 = *to* 1, 2, *or* 3 Quarts.

See Second Part, Chap. VI.

Of *mixing* Liquors, &c. *of different* Qualities. Of mixing Liquors.

The Rule.

The Difference *betwixt the* greateſt *Price, and the* given *Price, is the Quantity of the* worſt *Liquor: And the* Difference *betwixt the* given *Price, and the* ſmalleſt *Price is the Quantity of the* beſt *Liquor*. The Rule.

Example. I have Brandy at 4*s.* 6*d.* the Gallon, and I have Brandy at 9*s.* the Gallon, now I would ſo mix theſe Brandies as to ſell it at 7*s.* 6*d. per* Gallon. I demand in what Proportion I am to mix them to ſell at that Price? Example.

The

	s.		s.
The *greateſt* Price is	9	The *given* Price	$7\frac{1}{2}$
The *given* Price	$7\frac{1}{2}$	The *ſmalleſt* Price	$4\frac{1}{2}$
Of the *worſt* Liquor	$1\frac{1}{2}$ *Gallons.*	Of the *beſt* Liquor	3 *Gal.*

And thus I find there muſt be put 3 *Gallons* of the *beſt* Brandy to $1\frac{1}{2}$ *Gallon* of the *worſt* Brandy: Or which is the ſame thing, 2 *Gallons* of the *beſt* to 1 *Gallon* of the *worſt*.

To find the Quantity.

The Quantity *of* the Mixture *and its* Price, *and the* Price *of* each Liquor *being given*; *to find the* Quantity *of* each *to be mixt*.

The RULE.

The Rule. Multiply *the* given *Quantity*, *by* the Difference *betwixt the Prices* of it, *and that of the* worſt *Liquor*, *and* divide *the* Product *by* the Difference *betwixt the* beſt *and* worſt *Price*, *and* the Quotient *will be* the Quantity *of the* beſt *Liquor*.

An Example. *Example.* Let it be required to mix 40 *Gallons* of Rum at 8 *s.* 6 *d*, with Rum at 3 *s.* 9 *d.* ſo as to ſell it *at the Rate* of 5 *s.* 4 *d.* the *Gallons*.

	s.	d.		s.	d.
The *given* Price	5	4	The *greateſt* Price	8	6
The *worſt* Price	3	9	The *worſt* Price	3	9
	1	7 or 19 *d.*		4	9 or 57 *d.*

The *given* Quantity 40 *Gallons.*

19

360

40

57)760($13\frac{19}{57}$ of the *beſt* Rum.

57

190

171

19

And thus I find that in 40 *Gallons* of this Mixture there muſt be put $13\frac{19}{57}$ or $13\frac{1}{3}$ *Gallons* of the *beſt* Rum.

CHAP.

CHAP. XXXII.

How to meaſure *the* different Gravity *of* LIQUORS, *which ſhews the* different Strengths *thereof: Alſo a* TABLE *of* Specific Gravity. *Together with ſuch* Obſervations *concerning the* Scales *or* Balance, *as* every Exciſe-Officer *ought to be* acquainted *with.*

See *Plate* I. *Fig.* A.

Of the Areometer and its Uſe.

THERE is an Inſtrument, made of *Glaſs* or *Ivory*, &c. about 3 ½ or 4 *Inches* long, called an AREOMETER, there being as much *Quick-ſilver* in the *Bottom* at B, as will ſerve to keep it ſwimming in an *erect Poſition*. The *Stem* is divided into *Degrees*, and by the *Depth* of its *Deſcent* in any *Liquor*, its *Lightneſs* is concluded: For that Fluid or Liquor, in which it *ſinks leaſt*, muſt be *heavieſt:* becauſe the *greater* the *Gravity* the *ſtronger* the Liquor, and the *leſs* the *Gravity* the *ſmaller* the Liquor. You may make one for common Uſe of any Wood, about ¾ of an Inch *Diameter* at the *Bottom* and *terminating* in a *Conical* Point at the *Top*, putting as much *Lead* in the *Bottom* as will keep it *upright*, when in the Liquor.

To find the Specific *Gravity of a Fluid.*

For the Specific Gravity.

On one Arm of a Balance ſuſpend a leaden Globe; and to the other, faſten a Weight, which is in *equilibrium* therewith in the Air. Immerge the Globe ſucceſſively in the ſeveral Fluids, whoſe *Specific* Gravities are to be determined, and obſerve the Weight that balances it in each. Theſe ſeveral Weights, *ſubtracted* ſeverally from the *firſt* Weight, the Remainders are the Parts of the Weight loſt in each Fluid. Whence the *Ratio* of the *Specific Gravities* of the Fluids is ſeen.

Hence, becauſe the *Denſities* are, as the *ſpecific* Gravities, we find the *Ratio* of the *Denſities* of the Fluids at the ſame time.

This *Problem* is of the utmoſt uſe; as by it the Degree of Purity or Goodneſs of Fluids is eaſily found; a thing not only ſerviceable in natural Philoſophy, but alſo in common Life, and in the Practice of Phyſic.

A TABLE

A TABLE *of* SPECIFIC GRAVITY, *an* Ounce *the Integer.*

	Names.	Ounces and Decimal Parts Troy.	Troy. oz.	pw.	gr.	Ounces and Decim. Pts. Avoirdup.	Avoirdup oz.	dr.
One *Cubic Inch* of	Fine Gold, is	10.359273	10	7	4	11.365602	11	5.8
	Standard Gold	9.962625	9	19	6	10.930422	10	10.9
	Quickſilver	7.384411	7	7	16	8.101753	8	1.6
	Lead	5.984010	5	19	6	6.553885	6	8.9
	Fine Silver	5.850035	5	17	0	6.418324	6	6.7
	Standard Silver	5.556769	5	11	3	6.096569	6	1.4
	Roſe Copper	4.747121	4	14	23	5.208369	5	3.3
	Plate Braſs	4.404273	4	8	2	4.832116	4	13.3
	Caſt Braſs	4.272409	4	5	11	4.630300	4	10.1
	Steel	4.142217	4	2	8	4.544505	4	8.7
	Common Iron	4.031361	4	0	15	4.422979	4	6.8
	Block Tin	3.861519	3	17	6	4.236638	4	3.8
	Fine Marble	1.429411	1	8	14	1.568859	1	9.3
	Common Glaſs	1.360841	1	7	5	1.493037	1	7.9
	Alabaſter	0.988456	0	19	8	1.084477	1	1.4
	Dry Ivory	0.962083	0	19	6	1.055542	1	0.9
	London-brew'd Ale	0.562786	0	11	6	0.609929	0	9.8
	Dry Box-Wood	0.543282	0	10	21	0.596057	0	9.5
	Beer Vinegar	0.545392	0	10	22	0.591070	0	9.5
	Sack	0.544864	0	10	22	0.590506	0	9.4
	Milk	0.543809	0	10	21	0.589362	0	9.4
	Urine	0.543282	0	10	21	0.588791	0	9.4
	College plain Ale	0.542227	0	10	20	0.587648	0	9.4
	Sea Water, clear	0.542742	0	10	21	0.594894	0	9.5
	Pump Water	0.527458	0	10	13	0.578697	0	9.3
	Claret	0.423766	0	10	11	0.574646	0	9.2
	Linſeed Oil	0.491591	0	9	20	0.539345	0	8.6
	Proof Spirits, Brandy	0.489268	0	9	19	0.536796	0	8.6
	Sound dry Oak	0.489008	0	9	19	0.536569	0	8.6
	Oil Olive	0.481569	0	9	15	0.528350	0	8.5
	Oil of Turpentine	0.383680	0	7	16	0.415820	0	6.7
	Half a Pint of Muſtard Seed weighs						6	1.5

The Weight *of a* Cubic Foot *of* ſeveral Bodies, Avoirdupoiſe Weight, *in* Pounds *and* Decimal Parts, *&c.*

Table of a Cubic Foot.

	lb.	*lb. oz. dr.*
Gravel	109.3125	109 5
Common Sand	85.25	85 4
Newcaſtle Coal	67.75	67 12
Pump Water	62.7734375	62 12 6.4
Wood Aſhes	58.3125	58 5
Bay Salt	54.0625	54 1
White Peas	50.5	50 8
Field Beans	50.5	50 8
Wheat of the beſt ſort	48.5	48 8
White Sea Salt	43.75	43 12
Barley	41.125	41 2
Wheaten Meal unſifted	31.	31 0
Malt, two Months old	30.25	30 4
White Oats	29.5	29 8
Rye Meal unſifted	28.	28 0

The Uſe of the Tables of Specific Gravity.

Theſe Table are of excellent Uſe; for, by knowing the *ſolid Inches* or *Feet*, we can tell the *Weight*, or, by having the *Weight*, we can tell how many *ſolid Feet* or *Inches* are contained in any Quantity, *&c.* Uſe of the Tables.

Example. There is a *Bar* of *Iron*, in *Length* 156 *Inches*, and 1 *Inch* ſquare: I deſire to know how many *Pounds Avoirdupoiſe* doth it weigh? Example 1.

Operation.

The Tabular Number in *Ounces Troy*, is — 4.422979
The *Length* in *Inches* is — 156

26537874
22114895
4422979

The Operation.

lb.

16)689.98472400(43.12404525.

The *Value* of this *Fraction* .12404525 *lb.* is 1 *Ounce*, and .984724 *Parts* of an *Ounce*. So that the *Iron* weighed 43 *lb.* 1.984724 *oz.*

Again:

Example 2. *Again:* Suppoſe a *Bar* of *Iron* weigh 43 *lb.* 1.984724 *oz.* I demand how many *ſolid Feet* it contains?

This is but the *Reverſe* of the former Queſtion; for ſay,

As 4.422979 *Ounces* give *one Inch*, what will 43 *lb.* 1.984724 *Ounces* give?

Work by the *Single Rule of three Direct*, as is taught in *Page* 20, and the Anſwer will come out .0902 *Decimal Parts* of a *ſolid Foot*.

The Operation.

See the *Work*.

oz.	*Inch.*	£.	*oz.*
As 4.422979	*is to* 1,	*ſo is* 43	1.984724
		16	
		259	
		43	1728)
4.422979)		689.984724	(1560000 (.0902
			•• ••

That is *ſomething leſs* than *Half a Quarter* of a *Foot*.

A Tun of Brandy 2000 lb. Weight.

It is a common receiv'd Opinion amongſt *Diſtillers*, that *four Hogſheads*, or *one Tun*, (equal to 252 Gallons) of *Brandy*, weighs 2000 lb. Weight *Avoirdupoiſe*; how this agrees with our Tables, we will thus examine.

Firſt, In *one Gallon* there are 231 *Cubic Inches*, which *multiplied* by 252 *Gallons, produceth* 58212 *Cubic Inches* in a *Tun*; which *multiply* by .536796 (the *Tabular Number* of *one Inch* of *Proof Spirits Avoirdupoiſe*) produces 31247.968752 *Ounces*, which *divided* by 16, (the *Ounces in a Pound*) the *Quotient* is 1952.998047 *Pounds*, which you ſee is *ſomething leſs* than 2000; but then, by allowing the Difference for the *Tare*, or Weight of the Caſk, when *empty*, their Number 2000 is pretty near the Truth.

To prevent Impoſitions by Vintners, Diſtillers, &c.

Hence alſo you may moſt accurately diſcover whether you are impoſed upon by the *Merchant*, *Vintner*, or *Diſtiller*, &c. in the Qualities of *Wine* or *Spirits*, which you have bought on the Credit of the *Sample* that was ſhew'd you to *examine*; for, if you find that the *Specific Gravity* of the whole Veſſel *ſent you home* is different from that Parcel which *you tried* or *examined*, you may be aſſured it is ſome way *mixt* and *adulterated*.

Example 3. *Example* 3. What's the *Weight* of a *Barrel* of *London-brew'd* Ale, which contains 32 *Gallons*.

Firſt, ſay, As 1 : 282 : : 32 : 9024.
Gall. Inch. Gall. Inch.

Again,

Inches. *Ounces.* *Inches.* *Ounces.*

Again, ſay, If 1 : .609929 : : 9024 : 5503.999296, which *divided by* 16, gives *Pounds* 343.999956 for *Anſwer*.

Example 4. What's the *Weight* of a *Buſhel of Wheat*. Example 4.

Say,

Inches. *Pounds.* *Inches.* *Pounds.*

As 1728 *is to* 48.5, *ſo is* 2150.44 *to* 60.356 for *Anſwer*.

Note. If you would find what *Weight* and *Quantity* of theſe *Bodies* mentioned in the Table will have when *immerſed*, or put into *Water*, you muſt *ſubtract* the *Weight* of an *equal Quantity of Water*, from the *Weight* of the *propoſed Body*, (if it be *heavier* than *Water*,) and there will *remain* the *Weight* required. A Note.

As for Inſtance.

A *Cubic Inch* of *common Iron* is = 4.422979
A *Cubic Inch* of *Pump Water* is = 0.578697

Remains 3.844282 The *Weight* of a *Cubic Inch* of *Iron* in *Water*.

The Duties upon *Leather*, *Soap*, *Candles*, *Starch*, *Coffee*, *Tea*, &c. being chargeable by *Weight*, I ſhall here inſtruct the young Officer how to guard againſt the Abuſes the unfair Trader may put upon him, by uſing a *falſe Balance*, (which the Wiſe Man aſſures us) *is an Abomination to the Lord*, Prov. ii. 11.

Of the *Balance*, or *Pair of Scales*.

See *Plate* I. *Fig.* 20.

The eſſential Parts of a Balance are, (1.) the *Beam*, as AB; (2.) the *Axis of Motion*, which divides the *Beam* into *two Parts*, as C; (3.) thoſe Parts called the *Arms* or *Brachia*, as AC and CB, which may be either *equal* or *unequal*; (4.) the *Points of Suſpenſion*, as A B, or *Application*; *i. e.* the Points where the Weights really are, or the Scales in which the Weights are placed.

☞ When Weights hang freely from the *Points of Suſpenſion*, they gravitate neither more nor leſs for hanging *nearer to* or *farther from* the ſaid Points.

The Balance ſerves to compare together Bodies which have equal Quantities of Matter, though ſometimes differing in Bulk; for when the Commodities to be bought or ſold, or pay Duty, are placed in one Scale, ſo as to keep the Weights in the oppoſite Scale in *Æquilibrio*, the *Quantities of their Motion* are equal; and ſince the Vilocities are equal, on account of the

equal

equal Lengths or Diſtances A C and C B, the Quantities of Matter muſt be likewiſe equal; and this is ſhewn by the horizontal Poſition of the Beam.

When a Balance is in *Æquilibrio*, the Weights on each Side are ſaid to be *æquiponderate*; for this it is requiſite, that the Diſtances from the Center of Motion be reciprocally as the Weights, and in that Caſe if each Weight be multiplied by its Diſtance, the Products will be equal. *Graveſand's Mathem. Elements*, Book I. Page 30.

An Example. *Example.* Let the *Length* of each Arm of the Beam be = 14, and the Weights each = 12, it is plain, that 12 x 14 = 186 = to 12 x 14 on the other Arm.

If the Weights of any Body taken in each Scale of a Balance of unequal Arms be *multiply'd* together, the *Square Root* of the *Product* is the Weight of the Body propoſed.

An Example. *Example.* Admit *the Weight* of the Body *in one Scale* be 11, and *the Weight* of the *ſame* Body *in the other Scale* be 12, the *Square Root* of the *Product* of thoſe *two* Numbers will be 11.489, *the Weight* of the Body propoſed.

The Operation.

Operation.

```
  12
  11
-----
132.000000 (11.489
 . . . . .
  1
 --
21)32
   21
  ---
224)1100
    896
   ----
2288)20400
     18304
    -----
22969)209600
      206721
     ------
        2879
```

PROBLEM.

A Problem. *To make* a deceitful *Balance, or Pair of Scales, whoſe* Beam will *hang in* Æquilibrio without *the Scales, or with* the empty *Scales; and yet ſhall alſo be in* Æquilibrio *when* unequal *Weights are placed in the Scales; ſo as* to cheat in any Proportion intended *in making the Balance at firſt.*

See

See *Plate* I. *Fig.* 20.

To the *Beam* A B [23 Inches long, whoſe *Arm* C B, of 11 Inches in Length, keeps in *Æquilibrio* about the Point C the Arm C A, of 12 Inches in length, by being made ſo much thicker, or having ſo much more Matter, as may make amends for its being ſhorter,] hang the Scales D E, in ſuch a manner, that D, which weighs one Part in twelve leſs than E, ſhall hang at the longeſt End of the Beam, and they will keep each other in *Equilibrio*; then placing 12 Pounds Weight at G in the Scale E, it will keep in *Equilibrio* no more than 11 Pounds of F, the Commodity to be ſold, or that the *Duty* is to be paid for, if placed in the Scale D: Becauſe then, F will be to G in a reciprocal Proportion of B C to A C.

Now, though ſuch a Balance may be ſo nicely made as to deceive the Eye, the Cheat is immediately diſcovered, by changing the Weights and the Commodity F from one Scale to another; for then the Owner of the Balance muſt either confeſs the Fraud, or add to the Commodity he ſells, *&c.* not only what was wanting, but alſo as much as he intended to cheat him of; and a Fraction of the added Weight proportional to the Inequality of the Arms of the Balance, that is, in this Caſe the Buyer inſtead of 11 Pounds offered him for 12, his Due, will have (by changing the Scales) $13\frac{1}{11}$ Pounds. For whereas in the firſt Poſition of the Balance F (11) × A C (12) was equal to G (12) × B C (11), when G or 12 Pounds is placed in the Scale D, then 12 × 12 will be equal to no leſs than C B (11) × $13\frac{1}{11}$ G; or,

As the Arm C B, 11 Inches long:
Is to the Arm C A, 12 Inches long: :
So will be F, or the Weight 12, placed in the Scale D:
To G $13\frac{1}{11}$, or the Weight of the Commodity keeping the Weight in *Æquilibrio*.

And therefore as this Analogy gives a reciprocal Proportion between the Weights and their Velocities, the *Momenta* will be equal; which with contrary Directions, deſtroy one another.

N. B. In all theſe Caſes, we ſuppoſe the Weight to hang freely from thoſe Ends of the Balance to which they are faſtened.

CHAP. XXXIII.

Of Cord-Wood.

Of CORD-WOOD *.

See *Plate* IV. *Fig.* 10.

CORD-WOOD is mostly used in such Countries where *Iron Forges* are; I have often observed in *Worcestershire*, in my Lord *Plymouth*'s Woods, &c. the Manner of *Cutting* and *Burning* the *Cord-Wood*, which is thus:

When felled, &c.

In *October* they begin to fell the *Old Hedge Dwarf-Oak*, and other *Brambles*, which they saw, or cut into *three Feet Lengths*; and if the *Thickness* will bear it, they *cleave* it in *small Pieces* with a *Wedge*, about *two* or *three Inches* thick. Then they *pile* it up in *Ranks*, and let them stand thus till *March* following. Having lain *all Winter* in these Piles or Ranks *to dry*, the Workmen (or rather *Colliers*, as they call them) take them down, and build them all up again very curiously, laying every Piece so close and even, that you cannot see between one Piece and another, and the *Ends* are all *exceeding even*: The *Ends* of the Ranks are supported by *Stakes* driven into the Ground. They having thus rebuilt all the Piles or Ranks, they are now ready for the *Measurer*; for this sort of Wood is always sold by the *Cord*; the Dimensions of which are *eight* Feet *long*, *four* Feet *high*, and *four* Feet *broad*. And this is called a *Statute Cord*, whose *Solidity* is 128 *Feet* for a *Divisor*: But different *Counties* have different *Customs*, as we are informed by one † who hath been employed many Years in these Affairs. He says, that in *Denbighshire*, *Flintshire*, *Cheshire*, and the adjoining Part of *Shropshire*, they cut the Wood *three* Feet *long*, and set it up with a *Facing* to be *four* Feet *wide* or *broad*, and *four* Feet *high*, and *eight* Feet *long*; in the other Part of *Shropshire*, some Part of *Staffordshire*, *Worcestershire* and *Montgomeryshire*, they cut their Wood *three* Feet *long*, and set it up *three* Feet *wide*, *four* Feet *high*, and then they allow the Buyer *four Cord* for *three*, or *ten* Feet and *eight* Inches in *Length* for a *Cord*.

The Customs in different Counties.

I have seen (says he) in some Places, Wood cut *two* Feet *long*, and set up a Foot *wide*, and *four* Feet *high*; then *two Cord*, (as they call it) or *sixteen* Feet in *Length* is a *Cord*: But here, in *Sussex*, they differ from all the above-mentioned. The Wood is

* This Rank of *Cord-Wood* is not laid down in a due Proportion by a *Scale*, as most of the Figures in the Book are; because the Room we are confined to will not admit of it.

C F is a Cord, or Rope, tied to two Stakes at each End of the Rank, by which it is supported from failing.

† Mr. *Davis*, Agent to Madam *Crowley*'s Works in *Sussex*.

is cut *three* Feet *long*, and is set up *three* Feet *wide*, and *three* Feet *high*, and they call *fourteen* Feet in *Length* a *Cord*, which is *less* by *two* Feet than the other, it being only 126; for 3 × 3 = 9 × 14 = 126.

And I understand *this sort of Cord* is used in *most Parts* of the *South* of *England*, both for *Iron Works*, and for *Firing* in *private Families*.

Example. Admit a *Pile* or *Rank* of *Cord-Wood* be 14 Feet *long*, 4 Feet *high*, and 4 Feet *broad*; How many *Cords* are therein? An Example.

4 × 4 = 16, and 16 × 14 = 224 divided by 128 = 1.77 *Cord*, for answer.

By the *Sliding Rule*.

First, You must find a *Gauge Point* for this Purpose, which is no more than the *Square Root* of 128, which is 11.31; but by making use of this *first Gauge Point*, the Work will fall *off the Rule*: Therefore the *second Gauge Point* I find to be 35.7, as is taught in *Page* 49. By the Sliding Rule.

Secondly, The *Mean* between the *Length* of the *Rank* A B 14, and the *Breadth* A D 4, is 7.5: Now say,

D. C. D. C.
As 35.7 *is to* 4, *so is* 7.5 *to* 1.77.
G. Pt. Depth. Mean. Content.

Example 2. Admit a Rank of *Cork-Wood* A B = C F, be 20 *Feet long*, 4 *Feet broad*, and A E 5 *Feet deep*; How many *Cords* are there in the Rank? Example 2.

Operation.

First, For the *Mean* between A B 20, and A D 4: The Operation.

D. C C. D.
As 20 *is to* 20, *so is* 4 *to* 8.94, *the Mean.*

Secondly, For the *Content* by the *second Gauge Point*:

D. C. D. C.
As 35.7 *is to* 5, *so is* 8.94 *to* 3.13.
G. Pt. Depth. Mean. Content.

CHAP. XXXIV.

Of meaſuring Marl-Pits.

To meaſure MARL-PITS.

See *Plate* IV. *Fig.* 11.

Marling as practiſed in *Lancaſhire.*

IN *Lancaſhire*, and the adjacent Counties, this ſort of Meaſuring is of great Uſe; for when their Land has been *graſſed* ſo long, till it begins to bring forth *Ruſhes*, *Moſs*, &c. then they propoſe *to marl*, which they generally do in *May* or *June*, that ſo they may have finiſhed before their *Hay-Harveſt* in that County begins.

When the Owner of the Land has propoſed how many *Acres* he deſigns *to marl*, he appoints 10 or 12 Labouring Men (called *Marlers*) to come and view the ſame; which done, they agree upon a Price, which is about 20 *s.* a *Rod*, or *Perch*, that is, for ſo many *Rods* of *Marl* that are contained in the *Pit*. (They have eight Yards in *Length* to *the Rod*, which makes their *Acre*, and Meaſures depending thereon, very large.) The *Marlers* having agreed with the Owners for a *Price*, and Place where the *Pit* muſt be, they come in the *Winter* and *Fey*, (as they call it;) that is, mark out the *Shape* of the *Pit*, and dig off the *Earth* 'till they come to the *Marl*, which much reſembles a kind of *fat ſtraiked Clay*; this, in ſome Lands lieth near the *Surface* of the Earth, and in others a *Foot or two deep*, more or leſs, according to the Nature and Goodneſs of the Land. The Carts which are made uſe of in this Work are (or ought to be) 5 Feet *long*, 2.7 Feet *wide within* over the *Axle-Tree*, and 2 *Feet deep*; ſo that a Cart of theſe Dimenſions will juſt hold 27 *ſolid Feet* of *Marl*, and is accounted *one Load*, always drawn with *two* Horſes from the Pit to the Field: The *Marlers Day-Work* is ſo many *Thouſand* Load, according to the *Number of Hands* employed. They begin in the *Morning* at three o'Clock or before, and leave Work about three in the *Afternoon*.

Price *per* Rod.

Size of the Carts

Hours of Working.

They have *two Men* in the Pit called *Feyers*, and the reſt are *Fillers*; and in the Field there is a Man (or two if the Work is large) called a *Setter*, that is, directs the Driver of the Cart where to empty his Load, and there the *Setter* ſpreads the *Marl thin* upon the Ground; and thus it lieth till the *next Spring*, and then they plough it up, and ſow it with *Oats*. This Way of manuring the Land is counted the beſt, becauſe it will endure many Years without any other Repair. But ſuch *Marl* as is in *Lancaſhire*, is not to be found in every County in *England*; for in *Worceſterſhire*, *Warwickſhire*, &c. they manure their Land with *Lime*, fetched in Waggons from the Lime Pits. This they ſpread over the Land; but this will not laſt above *two* or *three* Years.

Marl a laſting Manure.

Lime not ſo.

Whop

When the *Marlers* have finiſhed, they ſet a Day apart *to dreſs* the Pit, which they do with *Flowers*, and the *Drivers* and *Horſes* are dreſt with *Poſies* or *Noſegays*, at which time there is a good *Feaſt* provided, with a fine *Poſie* or *Garland*, dreſt with *Plate*, *Rings*, *Watches*, &c. (after the manner of *Milk-maids* on a *May-day* in *London*,) prepared by ſome of the Country-maids, which they bring to the Pit, and preſent it to the *young Man* that drives the *Maſter's Team*, he having the Honour all that Day to hold the *Poſie* (as they call it) or Garland, which is reckoned amongſt them a very great Piece of *Honour*. Ceremony of dreſſing the *Pit*.

Some time after this, the *Maſter* and *Workmen* agree to make choice of ſome able Artiſt to meaſure the Pit, which is done in the following manner: Of meaſuring the Pit.

See *Plate* IV. *Fig.* 11.

Firſt, You are to obſerve that 8 *Yards long*, 8 *Yards broad*, and 1 *Yard deep* is a *Rod* of *Marl* in *Lancaſhire*: Therefore the *Dimenſions* being taken in *Feet* and *Decimal Parts* of a Foot, is a *Diviſor*, for *Rods* will be 1728 *Feet*; for $8 \times 8 = 64$, and $64 \times 9 = 576$, and $576 \times 3 = 1728$ *Feet*. What a Rod of Marl.

Thus, having found the *Diviſor* for a *Rod* of *Marl*, where 8 *Yards* in *Length* is *one Rood*, the next thing in order is to ſhew how to take the *Dimenſions*, which you may do in this manner.

Come to the *Pit*, draw the *Form* of it *upon Paper*, and divide its *Surface* into *Trapeziums* and *Triangles*; having provided ſome good *Pack-thread*, do the like by the *Pit* itſelf, and meaſure the *Baſes* and *Perpendiculars* in *Feet* and *Decimal Parts*, and in the moſt convenient Places (as your own Judgment will beſt direct) of the Pit. Take the *Depths* in the *like Meaſure*, and ſet them down upon your *Paper Draught*, as you ſee done in the *Figure*. Having taken the *Dimenſions* as above directed, we ſhall next proceed to caſt up *the Content* thereof. Form of the Pit to be drawn on Paper.

		Depths.
CE =	42.5	16.8
½ DI =	2	15.8
The *Area* =	85.0	The *Sum* 32.6
		The *half* 16.3
		The *Area* 85
		815
		1304

The *Content* of CDEI = 1385.5

AC

		Depth.
AC =	51.5	15.8
½BK =	2.6	5.0
		2.1
	3090	
	1030	3) 22.9 (7.6
The *Area*	133.90	
The *Depth*	7.6	
	8034	
	9373	

The *Content* of ABCK = 1017.64 *Feet.*

		Depths.
AE = 70	CH = 30.5	16.8
	GF = 35.5	15.8
		14.7
The *Sum*	66.0	11.3
Half the *Sum*	33.0	10.6
AE =	70	9.4
		8.7
The *Area*	2310.	3.4
The *Depth*	10.3	2.1
	6930	9) 92.8 (10.3 *Equated*
	2310	Depth.

The *Content* ACEF = 23793.0
CDEI = 1385.5 } *Feet.*
ABCK = 1017.64

1728) 26196.14 (15.17 *Rods.*
64

		Rods.	Yards.
68	*Answ.*	15	10.88
102			
10.88			

A Note. *Note.* The *two Depths* next to the *Pace* of the *Pit*, are not taken in *Whole*, but in their *Halves*, to answer the *Shallowness* of that *Part* of the *Pit*.

By the *Sliding Rule.*

By the Sliding Rule. The *Divisor* for *reducing* of *Feet* into *Rods* is 1728, its *Square Root* is 41.6, the *Gauge-Point* on the *Sliding Rule*.

1. For

1. For the *Triangle* C D E I.

The *Mean* between C E 42.5, and *half* D I 2, is 9.22; See *Page* 43; and the *mean Depth* is 16.3 *Feet.*

D.	C.	D.	C.	
As 41.6	*is to* 16.3,	*ſo is* 9.22	*to* .80	*Rod* or *Perches.*
G. Pt.	*Depth.*	*Mean.*	*Content.*	

2. For the *Content* of the *Triangle* A B C K.

The *Mean* between A C 51.5, and *half* B K 2.6 = 11.57, and the *mean Depth* 7.6 *Feet.*

D.	C.	D.	C.	
As 41.6	*is to* 7.6,	*ſo is* 11.57	*to* .59	*Rods* or *Perches.*
G. Pt.	*Depth.*	*Mean.*	*Content.*	

3. For the *Trapezium* A C E F.

The *Half* of the *two Perpendiculars* is 33, and the *equated Depth* 10.3 *Feet*; and the *Mean* between the *Baſe* A E 70, and *half Sum* of the *Perpendiculars* 33, is 48.06.

D.	C.	D.	C.	
As 41.6	*is to* 10.3,	*ſo is* 48.06	*to* 13.7	*Rods* or *Perches.*
G. Pt.	*Depth.*	*Mean.*	*Content.*	

ACEF = 13.7
ABCK = .59 } add.
CDEI = .80

The *whole Content* of the *Pit* = 15.09 *Rods*, as above.

Note. In the *ſecond Work*, where the *Diagonals* are taken in *Rods*, and the *Depth* in *Yards*, if you find the *Area* of each *Triangle*, &c. (according to the Rules of meaſuring *Superficies*) and thoſe *Areas multiplied* by the *Depths* on the *Lines* A and B on the *Sliding Rule*, you will have *the Content* in *Rods* as above; which being ſo plain, needs no *Example.* A Note.

If we *reduce* the *Baſes* and *Perpendiculars* into *Rods*, (or *Perches*) of *eight Yards* to the *Rod*, and the *Depths* into *Yards* and *Decimal Parts*, they will ſtand thus.

Depths,

Depths.		Diagonals.	
Feet.	*Yards.*	*Feet.*	*Rods.*
15.8	5.27	CE = 42.5	1.77
16.8	5.6	DI = 4.	.166
11.4	3.76	AC = 31.5	2.146
14.7	4.89	BK = 5.2	.219
10.6	3.53	AE = 70.	2.92
8.7	2.89	CH = 30.5	1.27
9.4	3.169	GF = 35.5	1.46
5.0	1.66		
2.1	0.69		
3.4	1.166		

They are *reduced* thus, *viz.* 16 *Feet* are $5\frac{1}{3}$ *Yards*, and .8 of a *Foot*, is $\frac{8}{10}$ of $\frac{1}{3}$ of *a Yard*, which *two Fraction*, viz. $\frac{1}{3}$ and $\frac{8}{10}$ of $\frac{1}{3}$ will be $\frac{54}{90}$ its *Decimal* = .6 of *a Yard*. Then 42.5 *Feet* is 1. $\frac{3}{4}$ *Rod*, and .5 of a *Foot* is $\frac{5}{10}$ of $\frac{1}{3}$ of $\frac{1}{8}$ of a *Rod*, = $\frac{5}{240}$ and $\frac{1}{4} = \frac{60}{240}$, its *Decimal* is .7708 of a *Rod*, and after *this manner* I have *reduced* the *other Feet* in *the Table*. Now if the *Superficial Content* of each *Triangle* be found in *Rods*, and that *multiplied* by the *Depth* in *Yards*, it will give the *Content* of the *Pit* as before, and the *Fractional Part* of a *Rod multiplied* by 64, gives its *Value* in *Yards*.

Chains, of what Length.

For this Purpoſe it will do well for the Practioner to have a *Chain eight Yards long*, *Decimally divided*; but if he meaſures where $5\frac{1}{2}$ *Yards* make a *Rod* or *Perch*, then let his Chain be *that length*; alſo he muſt have a *Yard decimally divided* to take the ſeveral *Depths*, as has been above directed.

A Decimal Yard

CHAP. XXXV.

Shewing how to find the exact Diſtance *to any Object that's viſible, without an* Inſtrument, *or* ACTUALLY MEASURING *of the Diſtance that is required.*

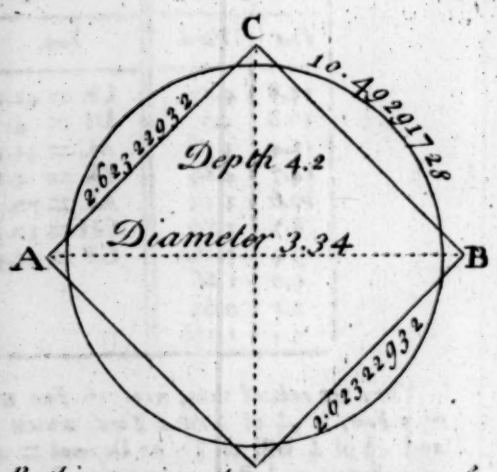
See *Plate* IV. *Fig.* 12.

Several Methods of taking Diſtances.

THERE are many good Ways known to *Geometricians* to take the *Diſtance of Places* one from another, *or*, from your *Station* to *any Place* ſeen at a *Diſtance*; but withal, there muſt be an *Inſtrument* uſed to take *Angles*, at *two Stations*, and oftentimes *Trigonometry* is called in to their Aſſiſtance, my Buſineſs ſhall

Plate. 4.

Fig. 1 Page 6



By this we prove the common way of measuring round Timber false

Fig. 2. Page 126 & 131

An open Vessel standing on the lesser Base

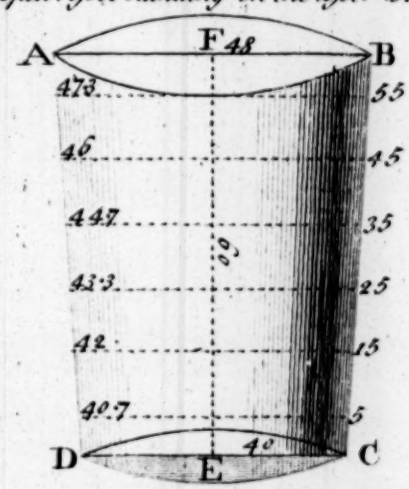
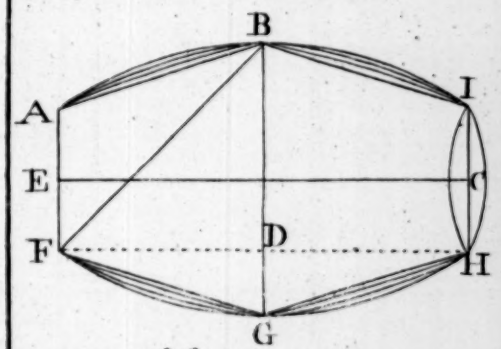


Fig. 3 Page 152

The four varietys of Casks Diagonal Line B.F.



These Varieties are more fully Demonstrated in Plate 5

Fig. 7 Page 143

A Still

See Plate VI. Fig. 6. 7. 8.

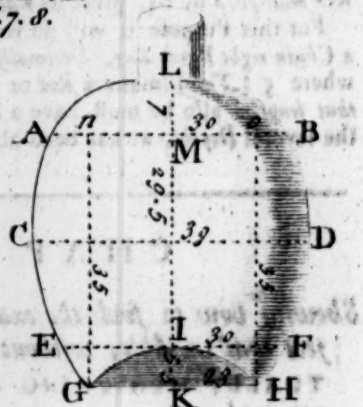
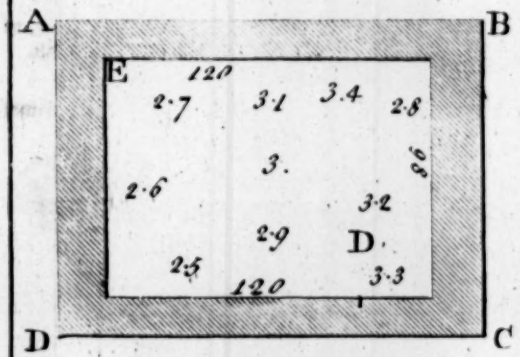


Fig. 8 Page 138

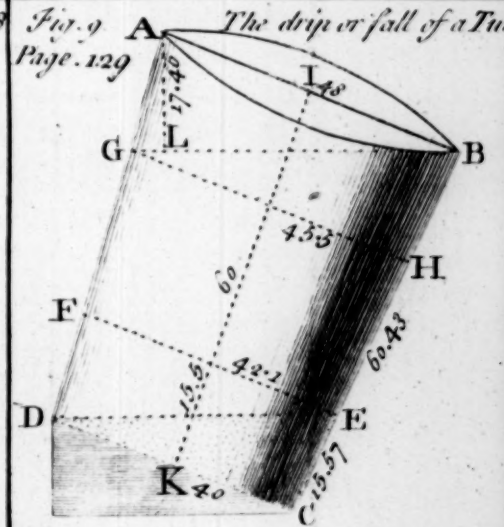
d Back or Cooler.



See Plate VI. Fig. 4

Fig. 9 Page 129

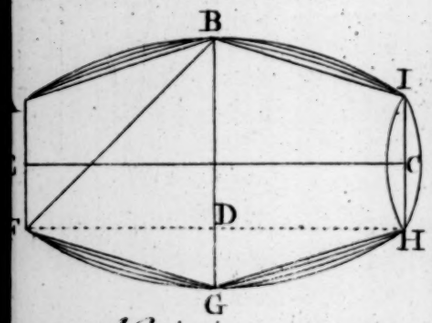
The drip or fall of a Tun



to fold out facing page [216] Part 1.

Fig. 3 Page 152

The four varietys of Casks
Diagonal Line B.F.



These Varieties are more fully Demonstrated in Plate 5

Fig 4 Page 179

A Cask part full by Bing on one side

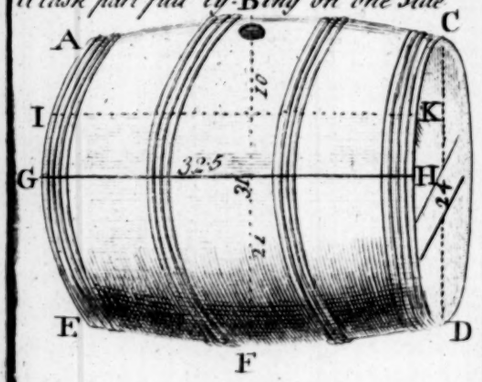


Fig. 5 Page 181

A Cask part full standing on one end

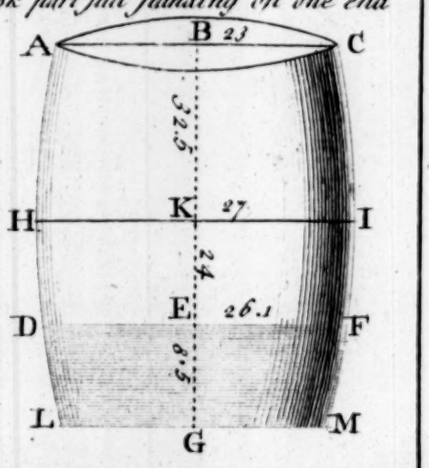


Fig. 6 Page 140

A Copper with a rising Crown.

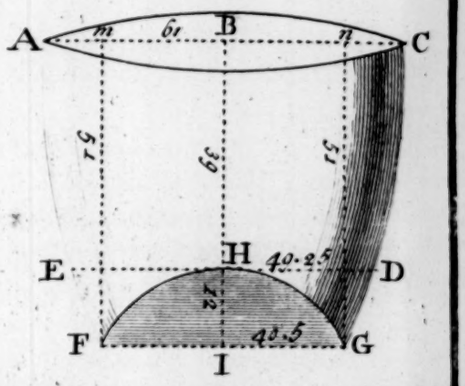


Fig. 9 Page 129 The drip or fall of a Tun

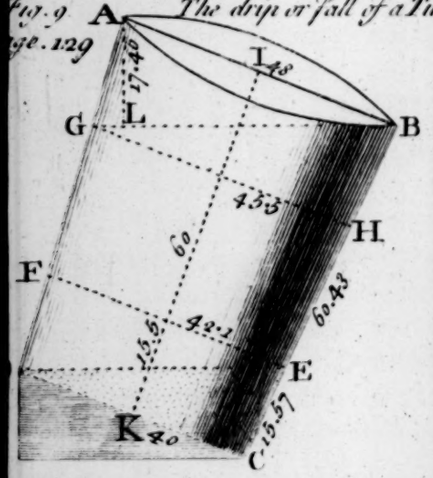


Fig. 10 Page 210

A Cord of Wood

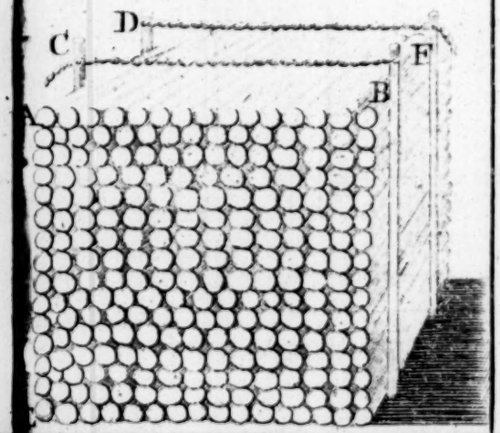


Fig. 11 Page 212

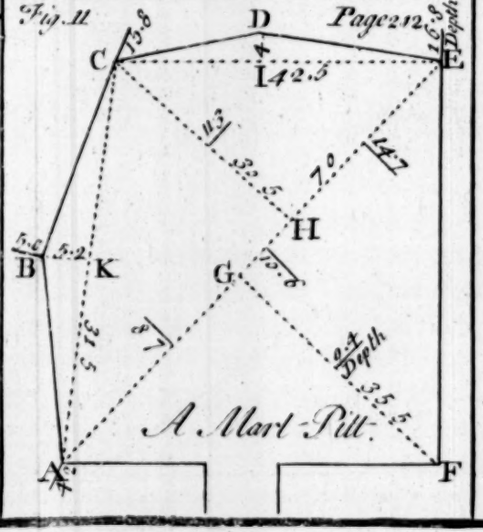


Fig. 12 Page 216

By this we can tell the distance to any Place on y Land without measuring

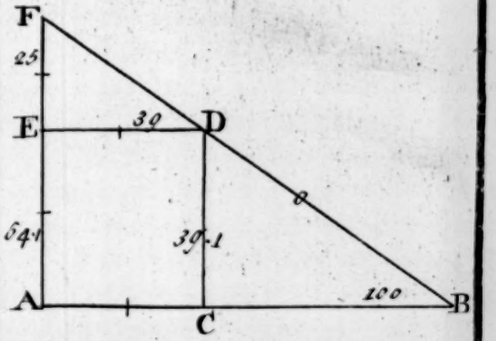
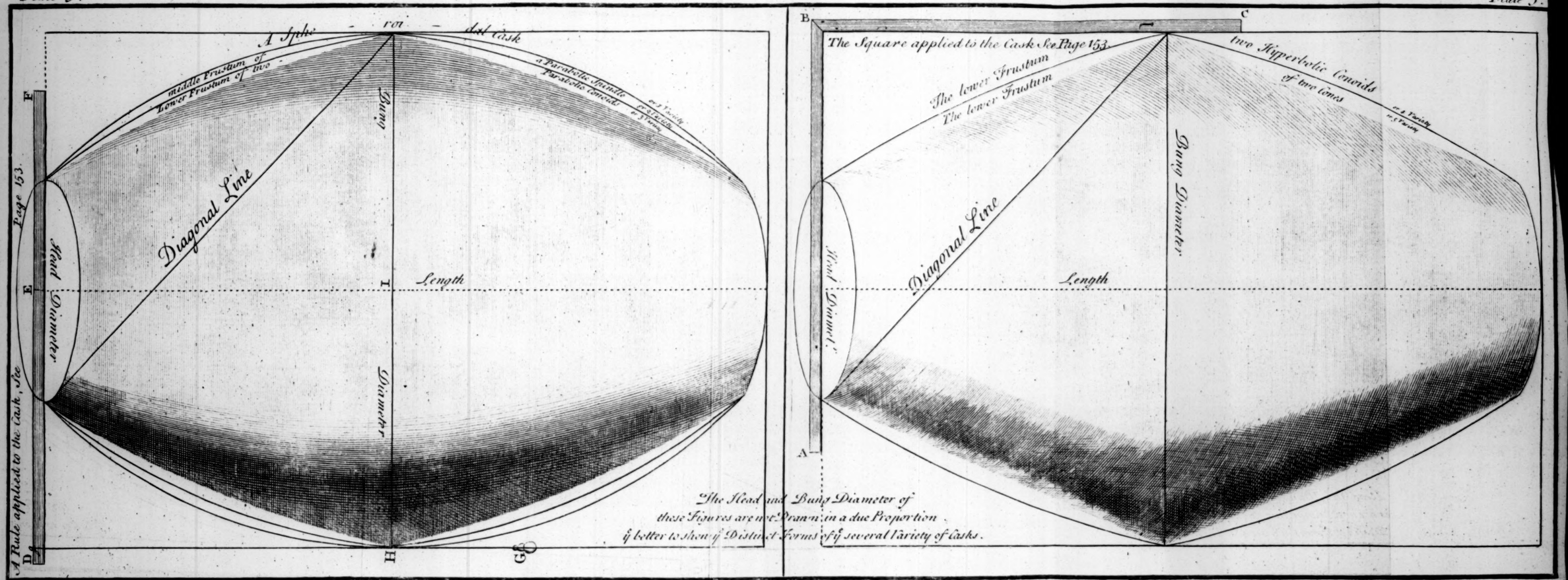


Plate 5.



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Ch. X

ſhall be
ſtrument.

Get *f*
of a Len
Diſtance
down *on*
thruſt *an*
the *Staff*
matters
but, if y
A, the
Number
Line C D
down the
A (*ſquar*
and the
F; here
&c. and
64.1 *Feet*
Now the
Triangles,
Therefor

As F

Note.
Oblong,

ſhall be here to ſhew how to perform the ſame *without* an *Inſtrument*.

EXAMPLE.

Get *four ſtraight Sticks* (it matters not whether they be all of a Length or not,) and then let it be required to meaſure the *Diſtance* A B, upon ſome *plain level* Ground: At A thruſt down *one* of the *Sticks*; there ſtand, and order an *Aſſiſtant* to thruſt *another* down at C; ſo that, ſtanding at A, you may ſee the *Staff* C, and the *Mark* at B, *both in a right Line*; (now it matters not at *what Diſtance* the *Staff* A is from the *Staff* C; but, if your *Diſtance required be large*, then the *farther* C is from A, the *better*:) then take a *third Staff*, and go from C any *Number* of *Feet*, *Yards*, or any *other Meaſure*, to D, ſo that the *Line* C D may be at *right Angles* with A B, and at D thruſt down the *third Staff*. *Laſtly*, Take the *other Staff*, and go from A (*ſquare-wiſe*, as before) ſo far till you can ſee the *Staff* D, and the *Mark* B in a *right Line*, which I ſuppoſe here to be at F; here make *a Mark*, and *meaſure* the *Diſtance* F E 25 *Feet*, *&c.* and E A 39.1; then F E 25 *added* to E A 39.1, make F A 64.1 *Feet*, by *meaſuring* C D *equal to* A E, I find it to be 39.1. Now the *Truth* of this Performance is grounded upon *ſimilar Triangles*, for the *Triangle* F E D is *ſimilar* to the *Triangle* F A B. Therefore it will always hold, Example.

As F E 25 *is to* E D 39, *ſo is* F A 64.1 *to* A B 100 *ferè*.

Operation.

As 25 *is to* 39, *ſo is* 64.1

39

5769
1923

25) 24999 (100 *ferè*.

Note. It matters not whether A C D E be a *Square* or an *Oblong*, provided always the *Angles* be *right*.

The END of the FIRST PART.

Having formerly obſerved ſeveral of my Brother Officers to have been unacquainted with what follows, relating to Vintners, *&c. ſelling Wine* by the Bottle, *I have here inſerted it for the Information of the young Officer.*

ABOUT *ſixty-five* Years ſince, the Abuſe the Public ſuſtained by the Sale of Wine *in Bottles* was ſo great, that the Legiſlature found it neceſſary to ordain, That, after the *Tenth* Day of *September*, One-
1689. thouſand, Six-hundred Eighty-nine, no Vintner, or Retailer of Wines whatſoever, ſhould ſell or utter any Wines by Retail, other than by, and in Meaſures made of Pewter, and ſealed according to the Statute, under the Pain and Penalty of *five Pounds*, for every ſuch Offence, to the Informer, to be recovered by Action of Debt, Bill, Plaint, or Information, in any of the King's Courts of Record, wherein no Protection or Wager of Law, or any more than one Imparlance ſhould be allowed. BUT, this Ordinance having put it into the Power of any *one* Perſon to convict the Offender, many vile People commenced Informers *for the Sake of the Reward:* And, on the other Hand, many Vintners *evaded the Penalty*, by pretending that what they ſold was ſome other Liquor, and not Wine; to prevent which Abuſes, the Legiſlature, the very next Year,
1690. ordained, That, if any Perſon, at any Time after the *Firſt* Day of *February*, One-thouſand, Six-hundred and Ninety, ſhould ſell or utter by Retail in, or by any Glaſs Bottle or Bottles, or in or by any other Retail Meaſure, not made of Pewter and ſealed according to Law, any Kind of Wine or Wines whatſoever, *or any other Liquor expoſed to Sale for Wine*; ſhould be convicted thereof by the Confeſſion of the Party, or by the Oath of *two credible* Witneſſes before one or more Juſtices of the Peace of the County, City, or Place, where ſuch Offence ſhould be committed; and ſuch Perſon being proſecuted for ſuch Offence, within *thirty Days* next after ſuch Offence committed, that then every Perſon, ſo offending, ſhould forfeit, for every ſuch Offence, the Sum of *Fifty Shillings*, which, if not paid *on Demand*, ſhould be levied by Diſtreſs and Sale of the Offender's Goods, by Warrant under the Hand and Seal of the Juſtice or Juſtices, before whom ſuch Conviction ſhould be made; which Warrant the ſaid Juſtice or Juſtices are impowered and required to grant to the Conſtable, Headborough, or Tything-man of the Pariſh or Place where ſuch Offence ſhould be committed, who are required immediately to levy the ſame, rendering the Overplus to the Owner thereof; and the Monies ſo levied to be paid to the Informer; and, for Want of ſufficient Diſtreſs, the Offender is to be committed to the common Gaol, there to remain without Bail or Mainprize, until he pays the ſaid Penalty, *and all the neceſſary Coſts and Charges of ſuch Conviction and Proſecution*; the ſaid Coſts to be taxed by the Juſtice or Juſtices before whom the ſaid Conviction was made. BUT it was provided, that, where any Offender ſhould be puniſhed by Virtue of this Ordinance, he ſhould not be proſecuted, nor incur the Penalty of any other Ordinance for the ſame Offence; and that no *Certiorari* ſhould be granted or allowed to ſuperſede, or remove any Conviction or Proceedings, in Purſuance of this Ordinance; but that Execution and all other Proceedings ſhould be had and made thereupon; any ſuch Writ or Writs of *Certiorari*, or Allowance thereof, notwithſtanding.

THE

THE Royal Gauger.

PART II.

CHAP. I.

Shewing what is to be obſerved and done by thoſe who would qualify themſelves for the Employment of an Officer in the Exciſe; *together with the Forms of thoſe* Oaths, Certificates, *&c. which are neceſſary for that Purpoſe.*

THE Method of obtaining Employment in the Exciſe is, by petitioning the Commiſſioners for an Order to be inſtructed; and in order to that, the Perſon who would petition muſt procure from the Miniſter of the Pariſh where he was born a Certificate of his Age, which muſt not be leſs than 21*, nor more than 30; and if married, he muſt have no more than two Children.

* See the *Supervisor* and *Collector's* Duty on *p.* 212.

A Certificate of the Petitioner's Age.

Certificate of the Petitioner's Age from the Pariſh Regiſter.

THESE are humbly to certify the Honourable Commiſſioners of Exciſe, and whom it may concern, that C. L. *of* F. *in the County of* L. *was baptiz'd the 8th Day of* 17 - - *and ſo is near Years old, as I find it in the Regiſter of the Church and Pariſh of aforeſaid. In Teſtimony thereof, I have hereunto ſet my Hand the Day of* 17 - -

E. F. { *Miniſter of the Pariſh and Pariſh Church aforeſaid.*

Then the Petitioner muſt get a Certificate and Recommendation ſigned by as many of the neighbouring Gentlemen as he can; the more conſiderable and well affected to the Government the Gentlemen are, the more his Petition will be regarded.

A Certificate and Recommendation to be ſign'd by ſome of the principal Gentlemen in the Neighbourhood in the *Country*.

To the Honourable Commiſſioners of Exciſe.

A Certificate and Recommendation of ſome of the principal Gentlemen in the *Country*.

THESE are humbly to certify your Honours, and whom it may concern, that C. L. *of* F. *in the County of* L. *is a Perſon well known to us to be near the Age of* 25 *Years, of a ſo-*

ber Life and Converſation, and well affected to the preſent Government; and, in our Opinion, very fit to ſerve his Majeſty in the Revenue of Exciſe: Therefore, we humbly recommend him to your Honours for an Order to be inſtructed for a Gauger. And in Teſtimony hereof we have hereunto ſet our Hands this Day of 17 - -

A. B. F. J. J. R.
C. D. G. H. L. M.

But whether the Petitioner lives in *London* or the Country, he muſt *write*, and take the following Oath, *viz.* that he has not made any indirect Application to be inſtructed.

The Oath, that the Petitioner has not indirectly endeavoured to obtain an Order to be inſtructed.

N. B. *This Oath muſt be taken before, and ſigned by a Juſtice of Peace.*

The Oath, that the Petitioner has not indirectly endeavoured to get an Order for Inſtruction.

I C. L. *do voluntarily make Oath, that neither I, nor any Perſon for me, have, to my Knowledge, directly or indirectly given, or promiſed to give any Fee, Gratuity, or Reward, to any Perſon or Perſons whatſoever, for the obtaining, or endeavouring to obtain for me, any Order of Inſtructions for my Introduction into the Revenue of Exciſe, or Employment therein. Dated the Day of* 17 - -

C. L.

It is very proper to get likewiſe a Certificate from the Collector or Surveyor, or *this* alone may do, but both are beſt.

The Surveyor's Atteſtation of the Petitioner's Abilities.

The Form of a Certificate to be ſigned by the Collector or Surveyor.

To the Honourable Commiſſioners of Exciſe.

May it pleaſe your Honours,

MR. C. L. *of* F. *in the County of* L. *by whom this Certificate is written, is well ſkill'd in* Vulgar *and* Decimal *Arithmetick, is of the Age of* 25 *Years, is a Man of ſober Life and Converſation, is ingenious, and has a fair Character for Integrity, is of a healthful Conſtitution of Body, and likely to make a good Officer; he is a ſingle Man, and is well affected to the preſent Government, and of the Communion of the Church of* England, *as by Law eſtabliſh'd: And this is humbly atteſted by,*

Honoured Sirs,

Your Honours moſt faithful,
And Obedient Servant,

E. F. { *Collector,* or *Surveyor.*

But

But if the Petitioner lives in *London*, and has Gentlemen of Figure and Credit that will wait on the Commissioners with him, at the Excise-Office, a Petition to the following Effect may be sufficient.

If the Petitioner lives in *London*,

The Form of the Petition.

To the Honourable Commissioners of Excise.

The Humble Petition of *A. B.* of *C.* in the County of *D.* by whom this is written.

Sheweth,

Form of a Petition when the Person, who lives in *London*, is personally recommended by some of the Commissioners at the Excise Office.

THAT your Petitioner is well skill'd in Vulgar and Decimal Arithmetick; and he is of the Age of 27 Years, as appears by a Certificate under the Hand of the Rev. Mr. E. F. *of* G. *and is a single Man, of a sober Life and Conversation, is ingenious, and has a fair Character for Integrity, is of a healthful Constitution of Body, and well affected to the present Government.*

Therefore he humbly desires your Honours will please to grant him an Order to be instructed for a Gauger within the City of London, *or Liberties thereof, or elsewhere. And, as in Duty bound, your Honours Petitioner shall ever pray,* &c.

☞ The foregoing Certificates, *&c.* must be wrote upon distinct Sheets of Paper, and sent to the Commissioners at the Excise-Office in the *Old-Jewry, London*, Carriage paid.

N. B. That Orders for instructing Pupils are issued out at the Excise-Office only six Months in the Year, *viz.* from *Michaelmas* to *Lady-day*, that being the *Malting* Season: So that it will be in vain for any Petitioner to expect an Order the other Part of the Year.

What farther relates to this Matter will be sufficiently, and I think best explained by setting down the Duty of the *Collectors* and *Supervisors*, as to giving Certificates, which is as follows:

The *Supervisor* and *Collector*'s Duty, when applied to for a Certificate for any one's having an Order for being instructed.

IT is the *Supervisor*'s Duty (to which in such Cases the *Collector* must conform) when any Person applies for a Certificate, in order to his being instructed, not to give him one before he has an Order so to do, either from the Board, or from some one of the Commissioners; nor must he give him such Certificate before he has satisfied himself that the Person applying is above *Twenty-one*, and under *Thirty* Years of Age; and for his Satisfaction in this Point, he must examine the Register *himself*, if the Person was born in his District; but if he was born in another District, he must get a Certificate from that Supervisor who is to examine the Register. And he must likewise satisfy himself, that he is a likely Man to make a good Officer, and that he writes a good Hand, and under-

ſtands the four firſt Rules of *Vulgar* and *Decimal* Arithmetick, that he is ingenious, healthy and active, and that he is of a ſober Life and Converſation, of the Communion of *the Church of England*, well affected to the Government, and that he is not incumbered with Debts, nor a larger Family than a Wife and *two* Children; and if the Surveyor finds him in every reſpect thus qualified, he muſt certify the ſame *gratis*. And this Certificate is to be wrote by the Perſon himſelf, and in it he is to expreſs the *Trade* or Buſineſs he has been bred up to (if any,) the Place of his Abode, whether he be married or ſingle; and if he be married, how many Children he has, together with the Names, Places of Abode, and Additions of *two* Perſons to be bound with him, ſufficient to anſwer *Two Hundred Pounds* for the due Execution of his Office; and he muſt likewiſe mention who he deſires to be inſtructed by; and beſides this, he muſt make *Oath* before one of his Majeſty's Juſtices of the Peace, that no Fee, Gratuity, or Reward is, according to the beſt of his Knowledge or Belief, given, or promiſed to be given, to any Perſon whatſoever, for his obtaining an Order of Inſtructions, or an Employment in the Revenue of Exciſe. See the *Oath* on *Page* 210. And this Oath muſt be writ by himſelf under the Certificate above-mentioned, and ſigned by the Juſtice of the Peace who adminiſtered the ſame to him.

The Petitioner, having obtained an Order for his Inſtruction, is put under the Care of an Officer, approved of by the Surveyor, for that Purpoſe: And when he is fully inſtructed, he muſt be examined by the Surveyor, whoſe Duty is as follows.

The Surveyor's Duty as to thoſe who deſire of him a Certificate that they are fully inſtructed.

THE SURVEYOR, before he certifies that any Perſon is fully inſtructed for the Employment of a Gauger, muſt be well ſatisfied, that he can caſt up both Exciſe and Malt Gauges, by the Sliding Rule; and that ſuch Perſon has gauged and ſtocked for a Month in the Diviſion in which he was inſtructed, and entered the ſame in a Book to be by him made for that Purpoſe; and that he has made a true Voucher and Abſtract therefrom; and that he is in all reſpects well qualified for a Gauger's Employment: And the Surveyor muſt take only 20 Shillings for ſuch Examination and Certificate; and the Books, Vouchers, and Abſtracts, being ſigned by the Perſon, Officer, and the Surveyor himſelf, the Surveyor muſt ſend to the Board, at the Charge of the Perſon ſo certified for, or to bear the ſame himſelf.

A Certificate from the Surveyor, that the Petitioner is compleatly qualified for a Gauger: Which muſt alſo be ſigned by the Officer by whom he was inſtructed.

Liverpool 1ſt Diviſion, *Feb.* 14. 17 - -

Surveyor's Certificate.

THIS is humbly to ſatisfy the Honourable Commiſſioners of Exciſe, that I A. B. *have examined* C. L. *in the Exciſe, Malt, and Diſtillery, and find him compleatly qualified for a Gauger; he has alſo proper Inſtruments for taking and caſting up Gauges, and in our Opinion is likely to make a good Officer. As Witneſs our Hands, the Day and Year above written.*

J. B. *Surveyor.*
C. L. *Officer.*

A neceſſary Piece of Advice.

And after all theſe Steps have been taken, yet, if the Petitioner cannot obtain the Countenance of ſome Gentleman, (a Member of Parliament is beſt) that is perſonally acquainted with one of the Commiſſioners, frequently to ſollicit and remind the Commiſſioner of his Promiſe, his Petition will certainly come to nothing; for notwithſtanding there are ſeveral Vacancies, either by Deaths, Diſcharges, &c. happening every Week, yet there are ſo many conſtantly applying, that thoſe Petitioners who have the beſt Sollicitors always ſucceed ſooneſt.

The Form of a *Gauger*'s Commiſſion.

The Form of an Exciſeman's Commiſſion.

TO all to whom *theſe Preſents ſhall come, greeting,* know ye, *that we whoſe Hands and Seals are hereunto ſet, being the major Part of the chief Commiſſioners and Governors for the Management of the Receipt of the Exciſe; that is to ſay, the Duties upon making and importing Beer, Ale, and other Exciſeable Liquors in* England, Wales, *and* Berwick *upon* Tweed, *and upon making Malt, and upon making and importing Mum, Cyder, and Perry reſpectively within the before-mentioned Limits, and of the Duties upon making Candles, and of the Duties upon Hops growing and to grow in* England, Wales, *and* Berwick *upon* Tweed; *and we alſo being the major Part of the Commiſſioners for the Receipt and Management of the ſeveral and reſpective Duties herein after mentioned, within the Limits aforeſaid; (that is to ſay) of the ſeveral and reſpective Duties upon making of Soap, Paper, Paſteboard, Milboard, and Scaleboard reſpectively; and upon Printing, Painting, or Staining of Paper, and upon Printing, Painting, Staining, or Dying of Silks, Callicoes, Linens, and Stuffs reſpectively; and upon making of Starch, and of Gilt and Silver Wire reſpectively; and upon Tanning, Tawing, or Dreſſing of Hides and Skins, and Pieces of Hides and Skins, and upon making of Vellum and Parchment reſpectively;*

By a Majority of the Commiſſioners.
Ale and Beer, &c.
Malt.
Mum, &c. imported.
Candles.
Hops.
Soap, Paper, &c.
Paper ſtain'd, &c.
Silks, Callicoes, &c.
Gold Wire, &c.
Leather, &c.
Parchment.

Plate. Coffee, Tea, &c.

ly; and upon Silver Plate, and Manufactures of Silver reſpectively; and of the Inland Duties upon Coffee, Tea, and Chocolate reſpectively, and of the Duties upon all the Materials or Metal, or other Preparations made Uſe of in the making of Glaſs, ariſen or accrued, or to riſe or accrue in England, Wales, *and Town of* Berwick *upon* Tweed, *repoſing eſpecial Truſt and Confidence in the Knowledge, Skill, Induſtry, Integrity, Fidelity, and Circumſpection of* Charles Leadbetter, Gentleman, have *(purſuant to the ſeveral and reſpective Powers, given and granted in and by the ſeveral and reſpective Statutes relating to the ſaid ſeveral and reſpective Duties, and in and by our ſeveral and reſpective Commiſſions and Conſtitutions) nominated, conſtituted, and appointed, and for his Majeſty's Service, do nominate, conſtitute and appoint, him the ſaid* Charles Leadbetter, *to be one of the Surveyors, Meſſengers, Gaugers, and Officers of and for the ſaid ſeveral and reſpective Duties before-mentioned, all and every of them reſpectively, and of all other Duties, that ſhall or may be put under the Management of us the ſaid preſent Commiſſioners, or of the like Commiſſioners for the Time being, and for the meaſuring and attending Malt that ſhall be ſhipped for Exportation, and for the ſeizing of all Coffee, Tea, Chocolate, and Cocoa Nuts, as ſhall be unlawfully imported, or carried within the Limits aforeſaid: And do hereby impower and require him the ſaid* Charles Leadbetter, *that purſuant to the Powers and Authorities, in and by the ſaid ſeveral and reſpective Statutes relating to the ſaid ſeveral and reſpective Duties, he ſhall, and do, from Time to Time, by gauging, meaſuring, weighing, and otherwiſe take, and alſo do enter into a Book and Books, to be from Time to Time delivered to him for that Purpoſe, full and true Accounts of the Quantities, Qualities, Natures, and Kinds of all and every the ſeveral and reſpective Goods, Commodities, and Manufactures reſpectively chargeable with, and liable to, the ſaid ſeveral and reſpective Duties, which he from Time to Time, ſhall, or may find out or diſcover, and thereof reſpectively ſhall and do, from Time to Time, make and deliver to us, the preſent Commiſſioners, and to the Commiſſioners for the ſaid Duties for the Time being, or the major Part of us, or them reſpectively, or to ſuch as we, or the major Part of us have appointed, or as we, or the Commiſſioners for the ſaid Duties for the Time being, or the major Part of us or them reſpectively, ſhall nominate or appoint for ſuch Purpoſe, full and true Returns, Reports, Vouchers, and Accounts in Writing, of the full and true Quantities, Qualities, Natures, and Kinds, of all and every the ſaid ſeveral and reſpective Goods, Commodities, and Manufactures before-mentioned, chargeable with, or liable to, the ſaid ſeveral and reſpective Duties, by him from Time to Time found out or diſcovered: And that he ſhall and do exerciſe, execute, and perform, all and every the Powers and Authorities, in and by the ſeveral and reſpective Statutes given and granted, or enacted*

Reaſons for appointing the Officer.

Appointment of the Officer.

Malt exported.

Coffee, Tea, &c. unlawfully imported.

Impower'd to gauge, meaſure, weigh, &c.

And muſt enter true Accompts in his Books.

And from Time to Time deliver to the Commiſſioners.

Or the major Part of them in Writing.

Of the Quantity, Quality, &c.

Of the Goods liable to the Duties,

enacted to be done, exerciſed, executed, and performed by ſuch Surveyor, Meſſenger, Gauger, or Officer, according to the true Intent and Meaning of ſuch Statutes reſpectively. To hold, *exerciſe, execute, and perform, the ſaid Office of ſuch Surveyor or Meſſenger, Gauger and Officer, as aforeſaid, during the Pleaſure of us the ſaid preſent Commiſſioners, and during the like Pleaſure of the Commiſſioners for the ſaid Duties for the Time being, or of the major Part of us reſpectively. And all Juſtices of the Peace, Mayors, Sheriffs, Bailiffs, and other Magiſtrates, and alſo all Conſtables, Headboroughs, and other Officers of the Peace, and other Perſon or Perſons whatſoever, are hereby prayed and required to be aiding and aſſiſting unto him the ſaid* Charles Leadbetter *in the due Execution hereof, as they will anſwer the Contrary at their utmoſt Peril.* Given *under our Hands and Seals, at the chief Office of Exciſe, and for the ſaid Duties, in* London, *this Day of in the Year of the Reign of our Sovereign Lord* GEORGE, *by the Grace of God, of* Great-Britain, France, *and* Ireland, *King, Defender of the Faith,* &c. Annoque Domini, 17- -

To hold his Office during Pleaſure.

Juſtices, *&c.* required to aſſiſt the Officer in Execution of his Office.

N. B. *The Commiſſion* is always ſigned and ſealed by *(five)* a Majority of the Commiſſioners.

WHEN the Officer is inſtructed, *&c.* before he offers to intermeddle in his Office, he muſt be careful to take the Oaths of Allegiance and Supremacy, and the Oath of Office, before one of the Barons of the *Exchequer*, or two Juſtices of Peace * in that particular County where he is employed, taking a Certificate thereof, which he muſt ſend to the Auditors of Exciſe at the Exciſe Office in *London*, that it may be entered there as the Law directs.

The Oaths of Allegiance and Supremacy.

The Oath of Allegiance.

I A. B. *do ſincerely promiſe and ſwear, that I will be faithful and bear true Allegiance to his Majeſty King* George;

So help me God.

The Oath of Supremacy.

I A. B. *do ſwear, that I do, from my Heart, Abhor, Deteſt, and Abjure, as impious and heretical, that damnable Doctrine and Poſition,* that Princes excommunicated or deprived by the *Pope*, or any Authority of the *See* of *Rome*, may be depoſed or murdered by their Subjects, or any other whatſoever. *And I do declare, that no foreign Prince, Perſon, Prelate, State or Potentate hath, or ought to have, any Juriſdiction, Power, Superiority, Preheminence or Authority, Eccleſiaſtical or Spiritual, within this Realm:*

So help me God.

* There is this difference betwixt taking theſe Oaths before a *Baron* or *two Juſtices*: Thoſe who have taken them before the Juſtices, if they are removed into another County, muſt take them *de novo*; whereas, the Baron's Certificate is ſufficient for any Part of the Kingdom; but then, for this the Officer uſually pays 5*s.* and but 1*s.* for that ſigned by the Juſtices.

The Oath of Office.

The Oath of Office.

YOU ſhall ſwear to execute the Office of Surveyor, Meſſenger, and Gauger for his Majeſty's Duties ariſing by Exciſe, truly and faithfully, without Favour or Affection, and ſhall from Time to Time, true Accompt make, and deliver to ſuch Perſon or Perſons as his Majeſty ſhall appoint to receive the ſame; and ſhall take no Fee or Reward, for the Execution of the ſaid Office, from any other Perſon than from his Majeſty, or thoſe whom his Majeſty ſhall appoint in that Behalf;

So help you God.

A Certificate by a Baron of the Exchequer, that the Officer has taken the Oaths of Allegiance and Supremacy, and the Oath of Office.

Sir *Thomas Bury*'s Certificate of the Author's having taken the Oaths of Allegiance and Supremacy, and the Oath of Office.

THIS is to certify, That Charles Leadbetter, *of* London, *Gent. came this Day before me, Sir* Thomas Bury, *Knt. one of the Barons of his Majeſty's Court of Exchequer, and took the Oath for the due and faithful Execution of the Office of Surveyor, Meſſenger, and Gauger for his Majeſties Duties ariſing by Exciſe, together with the two ſeveral Oaths, appointed by an Act of Parliament, made in the firſt Year of the Reign of their late Majeſties King* William *and Queen* Mary, *entitled, An Act for abrogating the Oaths of Allegiance and Supremacy, and appointing other Oaths. Witneſs my Hand, the Twenty-ſeventh Day of* March, *in the Year* 17--

Thomas Bury.

The Auditor of the Exciſe his Certificate, that he has regiſter'd the Author's taking the ſaid Oaths.

XXX^mo. Dei Apr. 17--
Intrat in Office Auditor.
per le Exciſe per

F. Stedman.

And at the *next Term*, or at the *next General Quarter Seſſions*, after he is admitted into Employment, he muſt take the Teſt and Abjuration Oaths, as preſcribed by the ſeveral Acts of Parliament, having firſt received the Sacrament, upon a *Sunday* in ſome Pariſh Church in the Preſence of two Witneſſes; and muſt take a Certificate thereof, ſigned by the Miniſter and Church-Wardens, in the Preſence of the ſaid two Witneſſes, who are alſo to appear in Court where he takes the Oaths, to prove that he received the Sacrament, and that the Miniſter and Church-Wardens ſigned the Certificate.

A Cer-

A Certificate that the Officer has received the Sacrament according to the Usage of the Church of *England.*

A Certificate of having received the Sacrament.

WE the Minister and Church-Wardens of the Parish and Parish Church of Prescot, *in the County of* Lancaster, *do hereby certify, that* Charles Leadbetter *of* Farnworth, *in the County aforesaid, on* Sunday *the Twenty-fourth Day of* April, *did receive the Sacrament of the* Lord's Supper, *in the Parish Church aforesaid, immediately after Divine Service and Sermon, according to the Usage of the Church of* England. *In Witness whereof, we have hereunto subscribed our Hands, the said Twenty-fourth Day of* April, 17--

George Abell, { *Minister of the Parish and Parish Church aforesaid.*

Thomas Johnson, Jacob Tomson, { *Church-Wardens of the said Parish and Parish Church.*

GEorge James *and* Richard Williamson, *of* Farnworth, *aforesaid, do severally make Oath, that they did see the said* Charles Leadbetter, *in the above written Certificate named, and who now present hath delivered the same into this Court, receive the Sacrament of the* Lord's Supper, *in the Parish Church aforesaid, and that they did see the said Certificate subscribed by the said Minister and Church-Wardens.*

George James.
Richard Williamson.

The Test Oath.

Test Oath.

I A. B. *do declare, that I do believe there is not any Transubstantiation in the Sacrament of the Lord's Supper, or in the Elements of Bread and Wine, at or after the Consecration thereof, by any Person or Persons whatsoever.*

The Oath of Abjuration.

Abjuration Oath

I A. B. *do truly and sincerely acknowledge, profess, testify, and declare in my Conscience before God and the World, that our Sovereign Lord King* George *is lawful and rightful King of this Realm, and all other his Majesty's Dominions thereunto belonging. And I do solemnly and sincerely declare, That I do believe in my Conscience, that the Person pretended to be Prince of* Wales, *during the Life of the late King* James, *and since his Decease pretending to be and taking upon himself the Stile and Title of King of* England, *by the Names of* James *the Third, or of* Scotland *by the Name of* James *the Eighth, or the Stile and Title of King of* Great Britain, *hath not any Right or Title whatsoever to the Crown of this Realm, or any other the Dominions thereto belonging; and I do renounce, refuse and abjure any Allegiance or Obedience to him. And I do swear, That I will bear Faith and true Allegiance to his Majesty King* George, *and him will defend*

to

to the utmoſt of my Power againſt all traiterous Conſpiracies and Attempts whatſoever, which ſhall be made againſt his Perſon, Crown or Dignity. And I will do my utmoſt Endeavour to diſcloſe and make known to his Majeſty and his Succeſſors, all Treaſons and traiterous Conſpiracies which I ſhall know to be againſt him or any of them.

And I do faithfully promiſe to the utmoſt of my Power to ſupport, maintain and defend the Succeſſion of the Crown againſt him the ſaid James, *and all other Perſons whatſoever; which Succeſſion (by an Act intituled,* An Act for the further Limitation of the Crown, and better ſecuring the Rights and Liberties of the Subject) *is and ſtands limited to the Princeſs* Sophia, *late Electreſs and Dutcheſs Dowager of* Hanover, *and the Heirs of her Body, being Proteſtants. And all theſe Things I do plainly and ſincerely acknowledge and ſwear, according to theſe expreſs Words by me ſpoken, and according to the plain and common Senſe and Underſtanding of the ſame Words, without any Equivocation, mental Evaſion, or ſecret Reſervation whatſoever. And I do make this Recognition, Acknowledgement, Abjuration, Renunciation, and Promiſe heartily, willingly and truly, upon the true Faith of a Chriſtian.*

The Form of *the Honourable Commiſſioners* to exempt an Officer from ſerving any *Pariſh* or *Ward Offices*, or *upon Juries*, &c. Which the Officer muſt write over fairly, and ſend it in to the Commiſſioners, and a *Majority* of them will ſign it.

An Exemption from ſerving any Office.

THESE are to certify, whom it may concern, that there is a Clauſe in the Patent to us from His Majeſty, in the Words following, viz.

AND to the Intent that you the ſaid *William Strong, George Townſend, Philip Ryley, John Whetham, Edward Noell, Chriſtopher Montague, Whitlock Bulſtrode, William Carr,* and *John Priſe*, may be the better enabled to attend the Execution of this our Commiſſion, and the Truſt in you repoſed, and may not be withdrawn from the ſame, WE do hereby declare *our Will and Pleaſure to be*, That whilſt this our Commiſſion remains in Force, you our ſaid Commiſſioners hereby conſtituted, or any of your *Sub-Collectors, Deputies, Officers*, or *Agents*, ſhall not be compelled to ſerve as *Mayors*, or *Sheriffs*, or *on any Jury*, or to *appear* or *ſerve* at any *Aſſize* or *Seſſions*, or to bear any other *Publick Office*, or *Employment*.

AND theſe are to certify, that A. B. *is employed by us as* [an Aſſiſtant Officer in the Brewery.]

Exciſe-Office, London, March 25, 17--

George Townſend,
Philip Ryley,
John Whetham,
Edward Noell,
Chriſtopher Montague.

The Form of the Author's Discharge with the Collector's Letter accompanying it.

Worcester Excise-Office, *Aug.* 30th, 17--

Mr. *Charles Leadbetter*,

The Collector's Letter.

YOU are to deliver to the Bearer Mr. *William Singer*, who is appointed to succeed you, all Books, Papers, Vouchers, Abstracts, or whatever else relates to Stores belonging to his Majesty: The under-written is a Copy of your Discharge.

I am, Sir,

Your Friend, and Servant,

Charles Harris.

Bromsgrove, 2*d* O. R.

SIR, *Excise-Office*, London, *Aug.* 19, 17--

The Author's Discharge.

MR. Charles Leadbetter, *Officer of* Bromsgrove 2*d Out-Ride, being order'd to remove to* Henly O. R. *and refusing to comply therewith, or to deliver up his Books to the Officer, who was to succeed him, as by your Letter of the* 17*th Inst. the Commissioners have order'd, that the said Mr.* Leadbetter *be discharged.*

I am, Sir,

Your Humble Servant,

Samuel Johnson.

The true Reason and Grounds of my Discharge was this.

The Reason of the Author's being discharged.

UPON *Sunday* the 9th of *August*, *Thomas Brooks*, Officer at *Henly-Arden*, came to me at *Alcburch* very drunk; he said that he and I must change Divisions, but brought me no Note either from the *Collector* or *Supervisor:* For *these* Reasons I told him our Sitting was next *Tuesday*, and then I should have Orders from them, if it was so. He staid and dined with me, and went home far from being sober; and told his Supervisor, Mr. *Anthony Gelder*, that I *refused* to remove; which was *actually false*. Since the *undeserved* Treatment I have met with, may possibly be of Service to others, I could not but think it proper to make it publick.

In Witness of the Truth hereof, I have hereunto put my Hand this 24th Day of *June*, 17--

Charles Leadbetter.

N. B.

Collectors Duty as to Stores when an Officer is diſcharged.

N. B. When any Officers are ordered to be diſcharged, the *Collector* muſt not pay them their Salleries, till they have delivered up their Commiſſions, and their Acts of Parliament, and the ſeveral Books and Stores that belong to their Diviſions.

Supernumerary, when he officiates, to have full Salary, and which Way he is to be paid it.

When any Supernumerary * or other Perſon officiates for any ſick Officer, the Collector muſt pay to ſuch Perſon ſo much as will make up full Officers Salary for the Time he officiates, and what he ſo pays more than the Salary Book will bear, he muſt place it to the Account of Incidents: But when any Supernumerary, or other Perſon officiates for an Officer, who has Leave to be abſent, the Revenue is not to bear the extraordinary Charge, but the abſent Perſon muſt pay what ſhall be occaſioned thereby.

Collector muſt hire one to carry the Portmantua, when the Supernumerary is officiating.

N. B. When the Supernumerary is officiating for any Officer, who is ſick or abſent; if the *Collector* ſhall want one to carry the Portmantua, he muſt hire one; and if this be occaſioned by reaſon of an Officer's having Leave to be abſent, the Charge muſt be borne out of the Salary of ſuch Officer; but if by Reaſon of the Sickneſs of an Officer, ſuch Charge muſt be placed to the Account of Incidents.

* The *Supernumerary*, is a *Commiſſioned* Officer, who attends on the Collector, carries the Portmanteau from Place to Place during the Round; receives Half-pay; and when a *Vacancy* happens he goes into Buſineſs: As ſoon as that happens the *Collector* acquaints the Board, and they immediately order him another Supernumerary, who receives his Commiſſion when he comes to his Collector.

CHAP. II.

Containing a Scheme of a Diviſion; *a* Dimenſion-Book; the Rates *of Exciſeable* Liquors, *and* other Duties *under the Management of the* Commiſſioners of Exciſe; *and of making* Seizures; *a* Voucher *and* Abſtract *for* Beer, Ale *and* Cyder; *a* Voucher *and* Abſtract, *for* Malt *and* Cyder; *with their reſpective* Indorſements.

A SCHEME

A SCHEME *of* Bromſgrove 2d O. R. 17--

N. B. *The* Officer *is always to inſert a* Scheme *of his* Diviſion *in the* Front *of his Books, except the* Dimenſion Book.

Plates Names.	*Miles.*	*Victuallers.*	*Maltſters.*	*Pep. Mill.*	*Candle M.*	*Soap M.*	*Starch M.*	*Hop Plant.*	*Tanners.*	*Tyzers.*
Redditch	1½	4	1		1				1	
Foxlidiat, Bently-Heath	2¼	2								
Hollick, Hewell	2½			1				1		
Tardibig	½	1						1		
Duff-Houſe	1		1					1		
Gambles	1		1							
Hollow-Tree	2	1								
Burcott	2½	5	1							
Stoney-Lane	2		1					1		
Cobley-Hill	1		1							
Upper Forge	2½							1		
Home	1									
SHORT *Round*	18¾	13	6	1	1			5	1	
Rownigreen	2½	1								
Alchurch	1	4	2							
Lickey, Roſe and Crown	2½	1								
Rednall-Green	1	1								
Holly-Hill	2		1							
Long Bridge	1½	1								
Norfield	4	2	1							
Weſt Heath	1½		1							
Kingſnorton	2	4								
Webb Heath	1		1							
Wetherick Hill	4	1								
Beely	2½	1		1						
Home	2½									
LONG *Round*	28	16	6	1	1					
SHORT *Round*	18¾	13	6	1	1			5	1	
Total	46¾	29	12	2	2			5	1	

Fitz Lambe, Superviſor.
Charles Leadbetter, Officer.

N. B. The Officers muſt write their *Chriſtian* Name at Length.

N. B. In thoſe *Diviſions* where Houſes are to be ſurvey'd *cautionarily*, as mentioned *Chap.* III. *Part* II. there is *another* Column of *Miles*, including the *cautionary Houſes*.

If you have any *Starch-Makers*, Dealers in *Coffee*, &c there muſt be Columns titled for them in the *Scheme*; and there is ſometimes a Column added to the right Hand; referring to the Malt, &c. Pages.

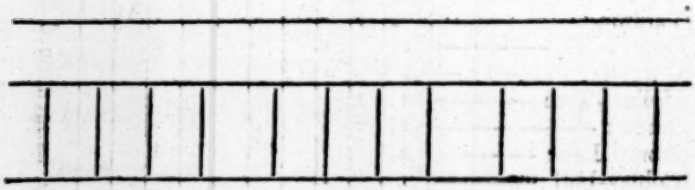
The *Number* of *Miles*, &c. in *each Round* muſt be added up, *exclusive* of the Number of Miles, &c. in the Place of your Reſidence.

☞ When you have any extraordinary *Compounders*, the Names of the Places where they reſide muſt be enter'd *under* the *Scheme*, and alſo the Names of the Places in the Scheme, *between which* ſuch Compounders lie, with the *Diſtance* from each.

A Specimen *of a* Dimension-Book.

Richard Ballamy.

30 M.T.	Ar.	32.5 Cop.	Ar.	Under Back.	1	Coolers. 2	3	8	Dp. 33.5 1 G.T.	Ar.	Dp. 30 2 G.T.	Ar.
43.2	6.2	38.2	4.07	L. 114	25	21.6	25.4	T. 38.6	33.5	3.12	43.2	5.2
42.	5.9	32.2	3.07	B. 81				C. 29.4	34.3	3.27	42.	4.21
40.7	5.5	30.4	2.57	A. 32.7	1.74	1.29	1.80	A. 3.16	32.3	2.90	40.7	4.61



N°	H.	B.	L.	Cont.	N°	H.	B.	L.	Cont.
1	24.6	28	32	65	8	24.3	29	31.6	66
2	20	23.4	25.5	36	9	20.5	22.8	25.6	34
3	22	25	30	48	10	13	15	16.4	9
4	23.2	25	28.5	48	11	*Mean*	17.3	19.3	16
5	17	19	20	18	12	21.5	25.5	20	32
6	35.5	37.5	42.7	160	13	19.5	20	19	20
7	25	30.2	32.5	74	14	24.5	29.5	33	72

The Explanation *of the* Dimenſion-Book.

Of the Utensils.

I. In the *firſt* Column to the *left Hand*, at the *Top* of the Scheme, are entered the *Diameters* of the *Marſh*-Tun, which ſtands upon *three* Areas, the *Diameters* being taken on every *ten* Inches *from the Bottom upwards*, (as are the *Copper* and *Guile-Tuns.)* In the *ſecond* Column ſtands the *Areas* of thoſe *Diameters*. II. In the *third* Column are the *Diameters* of the *Copper*, and in the *fourth* are the *Areas* of thoſe *Diameters*. III. In the *fifth* Column are the *Length* and *Breadth* of the *Back*, with the Area under the ſame. IV. Following this, in the 6*th*, 7*th*, and 8*th* Columns, are entered the *Diameters* of *three round Coolers*, (or open Tubs) marked 1, 2, 3, all ſet upon *mean Diameters*, with their reſpective *Areas* underneath the ſame. V. Next are entered the *tranſverſe* and *conjugate* Diameters of an *oval* Cooler, with its *Area*. VI. Next to the *oval Cooler* are placed the *Dimenſions* of two *Guile-Tuns*, taken in the middle of every *ten Inches*, as the *Maſh-Tun* and *Copper* before-mentioned, with the *Areas* placed over-againſt the reſpective *Diameters*.

The *Figures* placed over the *Utenſils* ſhew the reſpective *Depths* thereof.

Under the Utenſils there is a Blank Scheme, ruled in the ſame manner as that *above:* This is ready for inſerting the *Dimenſions* of any *new* Utenſil, when the *old one* is either demoliſhed or laid aſide; and when this is to be done, the *old Dimenſions* muſt be *croſs'd* over with the Pen, and the *Dimenſions* of the *new* Utenſil be enter'd *underneath* it, and the *Time* of its being *gauged* muſt be placed *over* the *new* Dimenſions.

Of the Casks

I. *Underneath* the Utenſils are placed the *Dimenſions* and *Contents* of the ſeveral *Caſks*, againſt their reſpective *Numbers* in the *firſt* Column. The *Caſks* themſelves are number'd with White Lead and Oil, from 1 to 14, being the Number of Caſks in the *Victualler's Cellar*. II. The *Column H.* is for the *Head*; that title *B.* is for the *Bung*; and thoſe titled *L.* and *Cont.* are for the *Length* and *Content* in *Ale Gallons* gauged as a *Spheroid*. (See *Part.* I. *Page* 149.)

N. B. The *Space* betwixt *each* Caſk is left ſo *wide*, that upon the *Alteration* of any Caſk, the *new* Dimenſions may be enter'd juſt *below*; and when this is done, you muſt ſtrike out the *old* Demenſions, by *drawing your Pen through the whole Line.*

The above Method muſt be obſerved for *every* Victualler, *&c.* in your *Diviſion*, and muſt be tranſcribed into your *Stock-Book*, every 1ſt, 3d, 5th, 7th, and 9th *Round*.

The

The RATES *of* Exciseable Liquors *and other* DUTIES *under the Managment of the Honourable* Commissioners *of* EXCISE.

See also Page 117.

		l.	*s.*	*d.*
Strong Beer.	STrong Beer *per Barrel*	0	5	0
Small Beer.	Small Beer *per Barrel*	0	1	4
Cyder and Perry	Cyder and Perry *per Hogſhead* [63 Galls.]	0	10	8
Vinegar.	Vinegar *per Barrel* [34 Galls.]	0	8	9
Verjuice.	Verjuice *per Hogſhead*	0	6	8
Mead.	Mead or Metheglin *per Gallon*	0	0	11
Sweets.	Sweets *per Barrel*	0	12	0
Low Wines.	Low Wines from *Melaſſes, Sugar, Sugar Water, Scums*, &c. or any Mixture therewith, *per Gallon*	0	1	0
Ditto.	Low Wines from *malted*, or *unmalted Corn*, per Gallon	0	0	2½
Ditto.	Low Wines from *Cyder* or *Perry*, per Gallon	0	0	3¾
Ditto.	Low Wines from *foreign Wine* or *Cyder*, per Gallon	0	1	3
Spirits.	Spirits from *Melaſſes, Sugar, Sugar Water*, or *Scums*, &c. per Gallon	0	0	6
Ditto.	Spirits from *Malt-Waſh, Brewers-Waſh, Tilts*, or any Sort of Grist, *per Gallon*	0	0	7½
Ditto.	Spirits from *foreign Wine* or *Cyder*, per Gallon	0	1	3

Malt, Candles, Soap, and Starch.

		l.	*s.*	*d.*	
Malt.	Malt *per Buſhel*	0	0	6	See *Part* II. *Ch.* IV.
Candles.	Candles, Tallow *per Pound*	0	0	1	See *Part* II. *Chap.* VIII.
	Candles, Wax *per Pound*	0	0	8	
Soap.	Soap *per Pound*	0	0	1½	See *Part* II. *Ch.* IX.
Starch.	Starch *per Pound*	0	0	2	See *P.* II. *Chap.* X.

Silks, Callicoes, Linens, and Stuffs.

		l.	*s.*	*d.*	
Silks, Linen, and Stuffs.	Printed Silks, ½ *Yard wide*, per *Yard*	0	1	0	See *Part* II. *Chap.* XV.
	Silk Handkerchiefs — *Yard Wide*, per *Yard*	0	0	4	
	Callicoes — *Yard Wide*, per *Yard*	0	0	6	
	Linen and Stuffs — *Yard Wide*, per *Yard*	0	0	3	

Hops,

Hops, Chocolate, Coffee, and Tea.

		l.	*s.*	*d.*	
Hops	*per Pound*	0	0	1	Hops,
Chocolate		0	1	6	Chocolate,
Coffee		0	2	0	Coffee, and
Tea		0	1	0;	Tea.

alſo 25 *l. per Cent.* of the *Groſs* Price of the *Tea* at the *Eaſt-India* Company's Sales.

Wrought Plate, Silver and Gilt Wire.

		l.	*s.*	*d.*	
Wrought Plate	*per Ounce*	0	0	6	Plate,
Silver Wire		0	0	6	Silver Wire, and
Gilt Wire		0	0	8	Gilt Wire.

For PAPERS of all Sorts, ſee *Part* II. *Chap.* XI. Papers.

For *Tanners*, *Tawers*, *Oil-Dreſſers*, and *Parchment-Makers* Goods, ſee *Part* II. *Chap.* VII. Leather, &c.

Glaſs, from *March* 25, 1746.	*l.*	*s.*	*d.*	
All Materials or Preparations made Uſe of in making *Crown*, *Plate*, *Flint* and all *White* Glaſs, *per Hundred Weight*	0	9	4	Crown Plate, Flint and White Glaſs.
N. B. There is alſo made *Enamelled* and *Stained* or *Coloured* Glaſs of various Colours, as *Black*, *Green*, *Blue*, &c. which pay *per Hundred Weight*	0	9	4	Coloured Glaſs.
All Materials or Preparations made Uſe of in making *Bottles*, and all other *Green Glaſs*, *per Hundred Weight*	0	2	4	Green Glaſs.

The *Exciſe* on LIQUORS IMPORTED.

'*This Duty, both in* England *and* Scotland, *is under the* '*Management of the* Commiſſioners of the Exciſe *reſpec-* '*tively, who generally impower the* Collectors of the Cuſ- 'toms, *at* the ſeveral Ports, *to levy it for them; being* '*payable on the following* Liquors, *viz.*

From *Foreign Parts.*

	l.	*s.*	*d.*	From *Foreign Parts.*
Ale or *Beer*, Black and Spruce per *Barrel*	0	15	0	Ale, &c.
Mum, the *Barrel*, viz. 32 Gallons	1	5	0	Mum, Cyder,
Cyder or *Perry*, the *Tun*	12	10	0	&c.
Brandy, *Aqua Vitæ*, *Spirits*, or Strong Waters, being *ſingle*, per *Gallon*	0	4	8	Brandy, &c.
Brandy, &c. as before, being *double*, or above Proof, *per Gallon*	0	8	8	Ditto Double.
N. B. *Rum*, *Aqua Vitæ*, *Spirits*, or Strong Waters from the *Britiſh Plantations* in *America*, being *ſingle*, per *Gallon*	0	3	8	From *Britiſh* Plantations in *America*.
Ditto, being *double*, or above Proof, *per Gallon*	0	6	8	

N. B. ‘ *Theſe Liquors are not to be landed before* due Entry ‘ be made *with the Collector of Exciſe at the Port of Im-* ‘ *portation, or before the* Exciſe be fully ſatisfied *and paid,* ‘ *and a Warrant for the Landing or Delivering ſigned by* ‘ *the ſaid Collector*; *or without* the Preſence of the Exciſe ‘ Officer, *upon* Forfeiture, *or the* Value.

From *Guernſey*, &c.

From *Guernſey*, *Jerſey*, *Sark*, or *Alderney*.

		l.	*s.*	*d.*
Brandy, &c.	*Brandy*, *Aqua Vitæ*, Strong Waters or *Spirits*, per *Gallon*	0	8	0
Vinegar.	*Vinegar* per *Barrel*	0	8	9
Cyder, &c.	*Cyder* or *Perry* per *Hogſhead*	0	10	8
Ale, &c.	*Beer*, *Ale*, and *Mum* per *Barrel*	0	6	0

All other Exciſeable Liquors the *ſame* Duties as paid in *this* Kingdom.

Before the Landing *of any Liquors from* Guernſey, Jerſey, ‘ *&c.* Oath *muſt be made by* the Importer *before the* ‘ Collector of the Cuſtoms, *that they are of the Growth* ‘ *and Manufacture of the* ſaid Iſlands, *and not made* ‘ *from, or mixed with any* Foreign Liquors, *or* Mate- ‘ rials.

N. B. Upon Exportation *of any of the above Liquors, there is* no Drawback.

Inſtructions for the making of Seizures.

THE Officer, when he makes a Seizure of *Brandy*, *Rum*, &c. *he muſt lay his Hand upon the* Caſks, Veſſels, *or* Package *ſo ſeized, and he muſt declare that he ſeizes ſuch* Brandy, Rum, *&c. and likewiſe the* Caſks, Veſſels, *or* Package *containing the ſame, for the proper Uſe of his* Majeſty *and* himſelf. *But in caſe the Officer happens to be* alone *when he makes ſuch* Seizure, *he muſt afterwards, in the Preſence of* Witneſſes, *lay his Hand again upon the* Caſks *and* Veſſels, *and make the Declaration as before directed.*

☞ All *Informations* on Seizures muſt be laid in the Name or Names of the *Officer* or *Officers* who make ſuch *Seizures*.

Worceſter.

N. B. The following VOUCHER must be wrote upon a large Sheet of Paper, and folded up in *Long Octave*, and indorsed as under.

EXCISE 3d Round, 17--

Worceſter Collection,

Bromſgrove Second Out-Ride VOUCHER;

From *Sept.* 26, to *Nov.* 8 following.

			l. s. d.
X	281	}	81 6 4
VJ	137½		
Cyder	5½		

CASH, Eighty-One Pounds Six Shillings and Four Pence.

Fines
Surcharges } Nil.
Arrears

Fitz Lambe, Supervisor.
Charles Leadbetter, Officer.

Worcester-Collection, *Bromsgrove* 2d Out-Ride VOUCHER for *Ale* and *Beer*, from *September* 26, to *November* 8 next following, 17-- *Third* Round.

		X.	VJ.	C.
September	27	6¼	½	
October	3	6	½	
	9	5½	½	
	18	4¾	1¼	
	25	3¾	1¼	
Odds		¾	½	
Will. Harvey		26½	4½	
October	2	3¾	1¼	
	7	3¾	1¼	
	14	3¾	1¼	
	19	3¾	1¼	
	25	3¾	1¼	
November	1	3¾	1¼	
	7	3¾	1¼	
Odds		1¼	¾	
John Rawlins		26¾	9½	
September	29	1¾	½	
October	12	1¾	½	
	17	1¾	½	
	24	1¾	½	
Odds		¾	¼	
Will. Bellamy		7¾	2¼	
October	4	1½	½	
	10	1½	½	
	18	1½	½	
	24	1½	½	
	31	1½	½	
Odds		½	¼	
John Lewis		8	2¾	
October	5	2½	1¼	
	22	2¼	1¼	
	18	2	1	
	23	2¼	1¼	
	30	1¾	1½	
Odds		½	½	
Will. Taylor		11¼	6¾	
October	5	1¾	1¼	
	18	1½	1	
	23	1¾	1¼	
	30	1½	1	
Odds		¾	½	
Robert Haycock		7¼	5	
October	5	1	½	
	12	1½	½	
	18	1½	½	
	23	1½	½	
	30	1½	½	
Odds		¾	½	
Mary Jorden		7¾	4	
October	5	2¼	1¼	
	18	2	1	
	23	1½	¾	
	30	1½	¼	
Odds		½	¼	
Fra. Carpenter		8¼	4	
		103½	38¾	

		X.	VJ.	C.
October	5	2½	1¾	
	18	2½	1½	
	23	2½	1¼	
	30	2½	1¾	
Odds		¾	¾	
Matt. Sanders		10¾	7¾	
October	12	1¼	1	
	18	1½	¾	
	23	1½	½	
	30	1½	¾	
Odds		¾	¾	
James Rutter		6¾	4	
October	5	¾	½	
	12	¾	½	
	23	¾	½	
Odds		½	½	
Hen. Leadbury		2¾	2	
October	5	1¼	¾	
	12	1¼	¾	
	18	1¼	¾	
	23	2¼	¾	
	30	1½	1	
Odds		¾	½	
Benj. Duce		7¼	4½	
October	12	1	¾	
	18	1½	1¼	
	23	1¼	¾	
	30	1¼	¾	
Odds		2¾	½	
Tho. Durling		5¾	4	
October	6	1¾	½	
	13	1¾	½	
	19	1¾	½	
	24	1¾	½	
	31	1½	¼	
Odds		½	¼	
Hen. Bellamy		9¼	2¾	
October	13	2¼	1¼	
	19	2¼	1¼	
	23	2¼	1¼	
	30	2	¾	
Odds		¾	½	
Rich. Bellamy		9½	5	
October	6	2½	1½	
	13	2½	1½	
	19	2½	1½	
	24	2½	1½	
	31	2½	1½	
Odds		1½	¾	
Isaac Oakal		14	8¼	
October	8	2¼	1¾	
	15	2	1½	
	21	2½	1¼	
	26	2½	1½	
November	2	2½	1½	
Odds		¾	½	
John Farr		12½	8½	
		78½	46¾	

		X.	VJ.	C.
October	6	3½	1¾	
	13	3½	1¾	
	19	3½	1¾	
	21	3½	1¾	
	24	3½	1¾	
	31	3½	1¾	
Odds		1	¼	
William Hall		21¾	11	
October	6	1½	1	
	15	1½	¾	
	22	1½	¾	
	29	1½	¾	
Odds		½	¼	
John Onion		6¾	3½	
October	4	¾	½	
	11	¾	½	
	19	¾	½	
Odds		½	¼	
Edward Bland		2¾	1¼	
Tho. Sanford		*Nil*	*Nil*	
October	4	1¾	¾	
	13	1¾	¾	
	19	1¾	¾	
	21	1¾	¾	
	24	1¾	¾	
Odds		½	¼	
George Withers		6¾	3¼	
October	6	2½	1½	
	15	4¼	2¼	
	22	2¼	1¼	
	29	2¼	1	
	31	2½	1½	
November	3	2	1¼	
Odds		1½	1¼	
Jos. Townsend		17¾	10½	
October	4	1½	1	
	13	1½	¾	
	22	1½	¾	
November	3	1¾	¾	
Odds		¾	¼	
Esther Handly		6¼	3¼	
October	6	1¾	1½	
	15	1¾	1	
	22	1½	¾	
	31	1½	¾	
November	3	1½	¾	
Odds		¾	¼	
John Fitter		8¾	5½	
October	4	2¼	¾	
	11	2½	¾	
	15	2½	¾	
	22	2¼	¾	
	31	2¼	¾	
November	3	2¼	¾	
Odds		1	¼	
Sam. Adkins		15	4½	
		85¼	43	

		X.	VJ.	C.	*l.*	*s.*	*d.*
October	13	¾	¼				
	19	¾	¼				
	31	¾	¼				
Odds		¾	¼				
Mary Povey		1¾	1				
October	6	¾	¼				
	19	¾	¼				
November	3	¾	¼				
Odds		¾	¼				
John Andrews		2½	1¾				
October	8	1¾	¼				
	15	1¼					
	22	1					
	29	1½	¼				
November	3	1½	¼				
Odds		¾	¼				
James Ford		7	3½				
Tho. Phithian	*Com.*	2½	2½				
September	30	—	—	1¾			
October	5	—	—	2¼			
	15	—	—	1¾			
Eliz. Wagstaff				5¾			
1st Column		103½	38¾		28	9	2
2d Column		78½	46¾		22	14	10
3d Column		85¼	43	.	24	3	7
4th Column		13¼	8¾	5¾	5	18	9
		281	137¼	5¾	81	6	4

The *Amount* of this VOUCHER is Two Hundred and Eighty-one Barrels of *Strong*, with One Hundred and Thirty-Seven Barrels, and One Firkin of *Small* Beer, and Five Hogsheads and Three Fourths of *Cyder*.

CASH is Eighty-One Pounds, Six Shillings and Four Pence.

Charles Leadbetter, OFFICER.

	13¼	8¾ 5¾

Worcester-Collection, *Bromsgrove* 2d Out Ride, ABSTRACT for *Ale* and *Beer*, from *September* 26, to *November* 8 next following, 17-- *Third* Round.

The Form of an *Ale* and *Beer Abstract*.

Victuallers Names, &c.	X.	VI.	Cyd.		l.	s.	d.
William Harvey	26½	4½			6	18	6
John Rawlins	26¾	9¼			7	6	5
William Ballamy	7¾	2¼			2	1	9
John Lewis	8	2¾			2	3	8
William Taylor	11¼	6¾			3	5	3
Robert Haycock	7¼	5			2	2	11
Mary Jorden	7¾	4			2	4	1
Francis Carpenter	8¼	4			2	6	7
1st Column	103½	38¾			28	9	2
Matt. Sanders	10¾	7¾			3	4	1
James Rutter	6¾	4			1	19	1
Henry Leadbury	2¾	2			0	16	5
Benj. Duce	7¼	4½			2	2	3
Tho. Durling	5¾	4			1	14	1
Henry Ballamy	9¼	2¾			2	9	11
Richard Ballamy	9½	5			2	14	2
Isaac Oakal	14	8¼			4	1	0
John Farr	12¼	8½			3	13	10
2d Column	78½	46¾			22	14	10
William Hall	21¾	11			6	3	5
John Onion	6½	3½			1	15	11
Edward Blun	2¾	1¾			0	16	4
Tho. Sanford	Nil.	Nil					
Geo. Withers	6¾	3¼			1	18	1
Jos. Townsend	17¾	10½			5	2	9
Esther Handly	6¼	3¼			1	15	7
John Fitter	8¾	5¼			2	11	1
Sam. Adkins	15	4¼			4	0	8
3d Column	85¼	43			24	3	7
Mary Povey	1¼	1			0	10	1
John Andrews	2½	1¾			0	14	10
James Ford	7	3½			1	19	8
Tho. Phithian	2½	2½			0	15	10
Eliz. Wagstaff			5¾		1	18	4
4th Column	13¼	8¾	5¾		5	18	9
1st Column	103½	38¾			28	9	2
2d Column	78½	46¾			22	14	10
3d Column	85¼	43			24	3	7
4th Column	13¾	8¾	5¾		5	18	9
Total—	281	137¼	5¾		81	6	4

Charles Leadbetter, Officer.

N. B.. The foregoing ABSTRACT * muſt be wrote upon a large Sheet of Paper, and folded up in *Long Octavo*, and indorſed as under.

How Ale and Beer Abſtract muſt *be indorſed*.

EXCISE 3d Round, 17--

Worceſter-Collection,

Bromſgrove 2d O. R.

ABSTRACT

From *Sep.* 26, to *Nov.* 8, following.

		l.	*s.*	*d.*
X 281	}	81	6	4
VI 137¼	}			

Fitz Lambe, Supervisor.
Charles Leadbetter, Officer.

Worceſter-

* All *Abſtracts* remain in the Cuſtody of the Collector, but the *Vouchers* go up to the *Board*.

N. B. The following VOUCHER must be wrote upon a large Sheet of Paper, and folded up in *Long Octavo*, and indorsed as under.

MALT 3d Round, 17--

Worceſter Collection,

Bromſgrove Second Out-Ride VOUCHER;

From *Sept.* 26, to *Nov.* 8 following.

Beſt.	*Floor.*	*l.*	*s.*	*d.*
5492	Nil.	110	19	9¾
Cyder	5¾			

CASH, One Hundred and Ten Pounds, Nineteen Shillings and Nine Pence Three Farthings.

Fines
Surcharges } Nil.
Arrears

Fitz Lambe, Surviſor.
Charles Leadbetter, Officer.

Worceſter-Collection, *Bromſgrove* 2d Out-Ride VOUCHER, for *Malt*, from *Sept.* 26, to *Nov.* 8, next following, 17 -- *Third* Round.

	Ciſt. and *Couch.*	*Floor*	*Cyder.*
September 27	62		
30	64		
October 5	63		
10	62		
15	65		
21	65		
27	55		
31	61		
Odds—	5		
October 5	65		
11	65		
19	53		
25	63		
30	55		
November 2	56		
7	40		
Odds—	2		
Thomas Sheward	901		
September 26	65		
30	62		
October 5	62		
9	62		
14	58		
19	64		
25	51		
Odds—	2		
29	42		
October 5	39		
10	42		
15	41		
21	30		
26	39		
31	32		
November 4	41		
Odds—	2		
Joſ. Smith	734		
Fran. Knight, Sept. 14	53		
September 30	——	——	1 ¾
October 5	——	——	2 ¾
15	——	——	1 ¾
Eliz. Wagſtaff	——	——	5 ¾

	Ciſt. and *Couch.*	*Floor*	*Cyder.*
September 29	54		
October 4	58		
9	53		
12	58		
17	56		
21	59		
25	54		
30	61		
4	60		
Odds—	3		
September 30	42		
October 5	44		
10	42		
13	43		
19	43		
24	47		
29	41		
Odds—	2		
Henry Parſonage	820		
September 30	50		
October 4	51		
9	50		
14	54		
18	55		
21	49		
24	51		
26	52		
29	52		
November 1	42		
4	51		
7	51		
Odds—	6		
September 26	52		
October 1	43		
5	31		
9	53		
13	55		
18	37		
23	41		
28	27		
31	31		
November 3	19		
7	50		
Odds—	5		
Henry Sheward	1058		

	Ciſt. and *Couch.*	*Floor.*	*Cyder.*
September 30	56		
October 3	61		
7	53		
12	54		
17	51		
21	60		
25	60		
30	55		
November 4	53		
Odds—	4		
John Harriſon	507		
September 29	1		
October 3	55		
7	60		
12	55		
16	54		
20	50		
25	57		
29	56		
November 1	53		
6	60		
Odds—	4		
September 26	58		
October 1	63		
4	58		
9	58		
13	53		
18	56		
22	54		
27	55		
November 1	53		
5	50		
Odds—	4		
William Hall	1067		
Richard Bailes, Oct. 15	53		
October 7	45		
12	56		
18	44		
Odds—	2		
Tho. Hunt	147		
October 10	51		
15	51		
21	49		
Odds—	1		
Tho. Hanſon	152		
Geo. Wilmot	*Nil*	*Nil*	
Joſ. Stephens	*Nil*	*Nil*	
R^t H^on the Earl of *Plymouth* comp.	18		
Benj. Jolliffe, Eſq; comp. *Heads*	10		

	Malt.	*Cyder.*	*l.*	*s.*	*d.*
1ſt Column	1688	5¾	34	18	2¾
2d Column	1878	——	37	11	2¾
3d Column	1926	——	38	10	4¾
Total	5492	5¾	110	19	9¾

N. B. The *Amount* of the *three* Columns of this *Malt* VOUCHER are placed (for want of Room) near the *Middle* of the *Voucher*, which ought to have been placed at the *End* of the *laſt* Column, as is done in the *Ale* and *Beer* VOUCHER.

The *Amount* of this VOUCHER is Five Thouſ
Hundred ninety-two *Buſhels* from *Beſt*;
Hogſheads and *three Fourths* of *Cyder*.
CASH, One Hundred and ten Pounds, nine
lings and nine Pence three Farthings.

Charles Leadbetter,

1688 | | 5 ¾

1878 | |

1926 |

Worceſter-Collection, *Bromſgrove* 2d Out Ride, *Abſtract* for *Malt*, from *September* 26 to *November* 8, next following, 17-- Third Round.

The Form of a *Malt Abſtract*.

Maltſters Names, &c.	*Ciſtern* and *Couch.*	*Floor*	*Cyder* *	*l.*	*s.*	*d.*
Tho. Sheward	901			18	0	4¾
Joſ. Smith	734			14	13	7¼
Francis Knight	53			1	1	0½
Eliz. Wagſtaff			5¾	1	3	0
1ſt Column	1688		5¾	34	18	0½
Henry Parſonage	820			16	8	0
Henry Sheward	1058			21	3	2½
2d Column	1878			37	11	2½
John Harriſon	507			10	2	9½
William Hall	1076			21	6	9½
Richard Bailes	53			1	1	2½
Thomas Hunt	147			2	18	9½
Thomas Hanſon	152			3	0	9½
3d Column	1926			38	10	4½
1ſt Column	1688		5¾	34	18	0½
2d	1878			37	11	2½
3d	1926			38	10	4½
Total—	5492		5¾	110	19	7½

Charles Leadbetter, Officer.

* The Duty of *Cyder* is 10 *s.* 8 *d.* per Hogſhead; 6 *s.* 8 *d.* of which is charged in the *Exciſe*, and 4 *s.* in the *Malt* Voucher.

N. B. The foregoing ABSTRACT muſt be wrote upon a large Sheet of Paper, and folded up in *Long Octavo*, and indorſed as under.

How a Malt Abſtract muſt *be indorſed.*

MALT 3d Round, 17--

Worceſter-Collection,

Bromſgrove 2d O. R.

ABSTRACT

From *Sept.* 26, to *Nov.* 8, following.

Beſt	Floor	*l.*	*s.*	*d.*
5492	Nil.	110	19	7½
Cyder	5¼			

Fitz Lambe, Supervisor.
Charles Leadbetter, Officer.

CHAP. III.

Shewing the Buſineſs and Duty of thoſe Officers of the Exciſe who ſurvey Victuallers, By-Brewers, *and* Common Brewers.

HAVING in the preceding Chapters very plainly and fully inſtructed the young Officer, in the Methods to be made Uſe of for obtaining Employment in the Exciſe, *&c.* I ſhall now proceed in ſhewing him the reſt of his Duty, and the Nature of his Buſineſs, when he is an eſtabliſh'd Officer.

It is requiſite the Officer ſhould demean himſelf reſpectfully to all Magiſtrates, and civilly to all Perſons whom he ſurveys; and he muſt ſhew his Commiſſion (for which Reaſon he muſt always have it with him) to any Perſons that he ſurveys, if they demand to ſee it. It is abſolutely neceſſary, that the Officer ſhould be ſkilful in gauging of all Manner of Veſſels, Caſks, or Utenſils; and he muſt provide himſelf with proper Inſtruments for taking the Dimenſions of all Veſſels, containing exciſeable Liquors, and for finding the *Contents*, or *Areas* of ſuch Veſſels, *&c.* The following are the Names of the ſeven Inſtruments which are enjoined by the Commiſſioners; and whoever is not provided with them, is not regularly qualified to be an Officer.

The Officer muſt deport himſelf reſpectfully to every one, and ſhew his Commiſſion when it is demanded.

Muſt be ſkilful in gauging, and provided with proper Inſtruments.

1. A *Cane*, or Holly-Stick *inched* and *decimally divided*. See *Plate* II.

2. A *Sliding Cane*, for taking the Dimenſions of large Ciſterns, Coppers, *&c.*

3. A *Sliding Rule* for the expeditious caſting up of Gauges, and for taking the Dimenſions of ſmall Tubs, *&c.* See the *Plate*.

4. A *Box and Tape* for taking *Couch* and *Floor-Gauges* of *Malt*.

5. A *Braſs Plate* for taking Malt Gauges.

6. A *Cork Plate* or *Plum*, for taking Gauges of Ale or Beer when working in the Vat.

7. A *Braſs Receiver* for fiſhing up the Barley from the Bottom, or any other Part of the *Ciſtern*, &c.

N. B. Some have alſo *Brenan*'s four Foot Sliding Rule.

The proper Inſtruments particularized.

Whatever Entries and Notices are given by *Common Brewers*, or by *other Perſons* liable to the Survey of Officers of Exciſe, muſt be carefully kept on *Files*, lock'd up by the reſpective *Office-Keeper* *; and as ſoon as the Office-Keeper receives ſuch Entry or Notice, he muſt, before he puts the ſame upon the File, write upon it the Day of the Month, and Year of our Lord, when he received it. The *Officer* muſt frequently examine the above-mentioned Files, and as ſoon as he finds any

Of Entries by thoſe liable to be ſurveyed.

Office-Keeper's Duty as to Entries.

Officer muſt frequently examine the Entry-Files.

* Is he that keeps the Houſe where the Collector holds his Sittings.

new Entry or Notice given, he must copy the same into a Book kept at the Excise Office for that Purpose; and the Office Keeper must sign all such Copies, to testify that they are true.

After Entries are made, the Officer must immediately repair to those who made them

The Officer, as soon as he possibly can, after such Entry is made, must repair to, and require the Person who made the same, to shew him every Place and Thing mentioned in the Entry: He must immediately describe the *Situation* of the Rooms, *&c.* in his Entry-Book, and mark the Particulars in such a Manner, as may enable him, his Supervisor, or any other Person readily to find the same at any Time.

Officer must never write any one's Entry for him.

Great Inconveniencies have arisen from the Officers writing Entries for those who are subject to their Survey; and therefore, it is strictly enjoined, that no Officer presume to write any Person's Entry for him. *N. B.* The *Maltsters* and *Hop-Planters* Entries which are to be made annually, must be copied into Books by themselves. The Officer must reside at such Place in his Division, as the *Collector* and *Supervisor* approve of; so that he may be able to secure, as near as possible, every Branch of the Revenue committed to his Care. And as early as possible every Morning, he must survey his whole Division, if it be a *Foot-Walk*; but if he has a *Ride*, he must survey his Place of Residence before he goes into the *Ride*, except there be Gauges depending in the *Ride*, which makes it necessary for him to hasten thither; and in such Case, he may survey that Part of his Ride, before the Place he resides at. Then as to such Officer who has a *Ride*, if he can survey his Ride in *one* Day, he must survey the same at least *four* Times a Week; and he is to stock it *three* Times, or oftner, if he see Occasion; and if he cannot possibly ride it under *two* Days, he must survey and stock the same *three* Times a Week, or at least *five* Times a Fortnight; But then this is not to be done in one constant Course, nor must he begin always at the same Place; but he must sometimes ride the same round twice following, and he must so contrive it as to double at such Times, and upon such Houses, when and where the most useful Gauges and Observations may be had; so that by surveying at Times *unexpected*, he may get the more Gauges, and probably discover unfair Practices. The Officer must take as many Gauges in the Ride as possible, and must use his utmost Endeavour to find out the best Lengths * of every Victualler in his Division. ☞ And at such Times as he cannot have a Gauge, and he finds the *cleansing* for *Tunnage* short of the best Lengths, which he used to have by Gauge, he must inform himself whether the same Quantity of Malt was used in that Brewing, which was used when he had such best Length; and he must likewise observe, whether the same Quantity be tunned, and whether any *Plus* Drink † remains; and he must use his best Endeavour to draw a true Confession from the Victualler, whether any has been sold, drank, or otherwise disposed of; or whether

Maltsters and Hop-Planters Entries made annually.

Foot-walks must be surveyed early every Morning.

Rides how to be surveyed.

Of Rides that can be surveyed in one Day.

Of Rides that can't be rid under two Days.

Must not always ride the same Rounds, *&c.*

Must take as many Gauges, and find out the best Lengths possible.

His Duty when the Tunnage is short of the best Lengths, per Gauge.

* *Length* is the Quantity of Gallons brewed at each Time.

† *Plus*-Drink signifies what is left after the Cask is filled.

whether the ſame Quantity was made as in any former Brewing; and enter a *Memorandum* thereof immediately, at the End of his Stock, that he may be able to juſtify his Charge on any Occaſion, when called upon for that Purpoſe.

The Officer muſt obſerve, that the moſt material Part of his Diviſion may be more cloſely attended on; and where it falls out that any inconſiderable Victualler lies ſo very remote, as to cauſe any Neglect of more conſiderable Houſes, in that Caſe he may make ſuch *cautionary* Surveys only, as the Collector and Superviſor ſhall think neceſſary and approve of: But before he offers to take that Liberty, the Collectors and Superviſors Directions muſt be entered in the Front of every Exciſe-Book, and ſigned by themſelves. If in his Diviſion he has any *Compounders*, he muſt enter their Names, and Places of Abode, in ſome convenient Part of his *Stock-Book*, in order to ſurvey them cautionarily; and upon each Survey, he muſt enter their Stocks and Gauges, as he does By-Victuallers; but he muſt diſtinguiſh from the reſt ſuch Drink in Stock, as was brewed ſince he laſt ſurveyed them. The Officer is to obſerve, that when his Surveys are made by *Night*, they muſt be in the Preſence of a *Conſtable*, or other lawful Officer of the Peace, in caſe he cannot have Admittance without one; and when he makes a Demand of Entrance into any Houſe under his Survey, he muſt for a reaſonable Time knock, ring, or call at the Gate, or Dwelling-Houſe, or ſuch other Place where he has uſually procured Entrance; and if he is not admitted on ſo doing, he muſt with a plain and audible Voice, make a Demand at the ſaid Gate, and Dwelling-Houſe, or other Place, in Words to the following Effect:

" I Gauger, or Officer of Exciſe, do demand
" Entrance into the Houſe of Mr.
" to gauge, ſurvey, or take an Account of his
" as the Law directs."

He muſt obſerve, that as the Demand muſt be made in the Preſence of a Conſtable, if it be by Night, he muſt mention in his Demand that a Conſtable is with him: and if the Demand be made in the *Day-Time*, he ſhould, if poſſible, have ſome ſufficient Witneſs preſent, to prove his making ſuch Demand; and after he has ſo done, he is to ſtay a reaſonable Time before he goes from the Houſe, or Place; and he muſt enter the Whole of his Proceedings in his Book; and when Entrance is denied him, he muſt, if poſſible, acquaint the Perſon, or his Servant, with the Danger thereof, and the Penalty incurred by ſo doing.

The Officer as he goes round his Diviſion in a Morning, or the Place of his Reſidence, muſt take Gauges of all the depending Guiles *, and he muſt *return* on ſuch as he found at work, and on ſuch as he ſuſpects will work, ſo as to take a Gauge of each Wort, as ſoon after it comes out of the Copper as poſſibly he can, that he may, if poſſible, have diſtinct Gauges both *hot* and

Of Victuallers who live remote

Of Compounders.

Surveys made in the Night muſt be in the Preſence of a Conſtable, &c.

How Entrance muſt be demanded.

The Form of demanding Admittance.

Proper to have Witneſs when Entrance is demanded in the Day-time.

Muſt ſtay a reaſonable Time before he depart.

Muſt acquaint the Perſon, or his Servant, of the Danger.

Of depending Guiles.

Muſt get a Gauge as ſoon as it comes out of the Copper.

* A *Guile* ſignifies all the Brewing of Worts put together.

When the Brewing muſt be taken into Stock.

Where his Diviſion is very large.

Of a Houſe twice ſurveyed in one Day.

The Word *Ditto* to be avoided.

Of the uſing Cyphers.

The Officer muſt daſh thro' all the vacant Columns.

Deduction where the Worts are gauged warm, *&c.*

Muſt take Gauges as often as he can.

Should ſee it returned, if poſſible.

How the Officer may compel them to give him Notice of returning.

Small Beer ſold raw.

Muſt never take Gauges, Stocks, *&c.* on looſe Paper.

and *cold*, on each Wort; and he muſt take into Stock every Brewing the next Day after it is tunned, if the Nature of his Buſineſs will permit: But if his Divtſion is ſo large, that he cannot have a Gauge on each Wort diſtinctly at all the Victuallers, he muſt take the Gauges on the Worts diſtinctly, at as many Houſes as he can; ſometimes at one, and ſometimes at another: and when the Officer makes two or more Surveys at one Houſe, in one Day, the Day and Hour muſt be entered to each Viſit, and not the Word *Ditto* or *Do*; nor muſt he when *Diameters*, &c. are to be repeated, or in any other Caſe, write in his Books the Word *Ditto*. The Officer when he enters a Depth, or dry Inches, a Diameter, or Length and Breadth, which is leſs than ten Inches, he muſt place a *Cypher* before it; if it be a Depth under *one* Inch, two *Cyphers* are to be placed before the *Decimal*; or if it be a Depth, Diameter, *&c.* in *even* Inches, he muſt put a *Cypher* in the Place of *Decimals*; and after he has entered his Gauge of all the Worts, and before he leaves the Houſe, he muſt obſerve to daſh through every vacant Column in the Gauge Place. When the Officer takes a Gauge of Wort, ſo warm as to require the Allowance of *one Tenth* Part for Waſh and Waſte, he muſt annex *(W)* to the Character of ſuch Wort, and deduct *one Tenth* Part thereof in the Caſting; and when he takes the laſt Wort of a new Guile, if any former were not cleanſed, upon his Morning Survey he muſt be ſure to take an Account thereof, either by *Gauge* or *Tunnage*. He muſt alſo take Gauges of the Goods as often as he can, and enter them in his Book, though at the Time of taking thereof the Worts are not fit to be gauged. When it happens that a Victualler (or common Brewer) declares that the Small Wort of one Brewing will be brought over the Goods of a ſucceeding Brewing, the Officer muſt gauge ſuch Wort, and *characterize* it with *R*; and if upon his following Surveys he finds the Wort ſo returned or brought over, which, if poſſible, is to be done in his Sight, he muſt write in his Book that the ſaid Wort was returned, and in ſuch Caſe no Charge is to be made upon it.

☞ The Officer to prevent his Attendance longer than is neceſſary, to ſee the Worts returned, muſt adviſe the People to give him Notice of the exact Time when they intend to do it; which he may bring them to comply with, by charging the ſaid Worts, when they refuſe or neglect to give ſuch Notice to him. And ſeeing ſeveral Perſons do diſpoſe of, or ſell their Small Beer raw, or unboiled, the Officer muſt endeavour in ſuch Caſe to ſurvey before any is diſpoſed of, and take a Gauge thereof, either in the *Under Back* * or Cooler, or other Veſſel where he finds it, and charge the ſame with the Duty. The Officer muſt never take Gauges, Stocks, *&c.* on looſe Paper, but he muſt enter them on his Book, before he leaves each Houſe, the Stocks, Gauges, *&c.* taken at ſuch Houſe, and the Time

* *Under Back*, is a Cooler that ſtands under another.

Time of his Survey. The Officer muſt be ſure to caſt up his Gauges every Night, and alſo to bring forward his Charges, *viz.* 1. From the beſt ſeperate Gauges of the ſtrong Worts added together: Or, 2. from a Gauge of thoſe Worts mixed, if it be better than the ſeparate Gauges thereof: Or, 3. from the Stock if that exceeds the beſt Gauge, he muſt make the Charge of each Brewing, which is to be ſet forward ſeparate.

Gauges muſt be caſt up every Night.

In what manner this muſt be done

The Officer muſt make his Figures large, and keep all his Books fair; he muſt not at his Peril ſcrape, ſcratch, or alter any Figure, Character, or Remark, in any of his Books; but if he happens to make any Miſtake in entering his Gauges, Stocks, *&c.* he muſt draw a ſmall black Line through ſuch Miſtake, ſo that the Original may appear, and enter a *Memorandum* what the Right is. And *note*, the Miſtakes which may happen in tranſcribing the Areas of Utenſils, or Contents of Caſks, muſt be rectified and ſigned by the Superviſor. The Officer muſt not ſurvey in a curſory or careleſs Manner, but with ſuch Care and Circumſpection, as is neceſſary to prevent his being impoſed upon; for it is expected, that he ſhould uſe his utmoſt Diligence, to prevent or detect all Frauds in every Duty under his Care and Management: And when he diſcovers any Fraud, or any Practice, which appears to be with a fraudulent Intent, he muſt not offer to make any *Compoſition* for the ſame, but muſt give a true Account thereof in due Time to the Collector, or Superviſor, who are to acquaint the Board therewith, to the End that the Perſon may be legally proſecuted for the ſame.

Figures muſt be made large.

No ſcraping, altering, *&c.* at the Officer's Peril.

How Miſtakes are to be rectified without it.

Miſtakes in tranſcribing Areas, *&c.* how to be rectified.

All Surveys muſt be made with Circumſpection.

Frauds muſt never be compounded.

The Officer muſt ſtock the Victuallers where he reſides, at ſuch Times as may leaſt hinder his taking Gauges; though he ſtock not all in *one* Day, yet ſo that the whole be ſtocked three Times a Week, or at leaſt five Times a Fortnight; and he muſt never be above three Days wide in the ſaid Stocks. When the Officer has in his Diviſion a Victualler, who brews himſelf, and alſo takes in Drink from common Brewers, or Victuallers, he muſt not intermix the Stock of theſe two Sorts of Drink, but muſt keep them ſeparate, even though the Drink bought in be in the Victualler's own Caſk; and when it comes in, he muſt write againſt the Stock the Brewer's or Victualler's Name, and the Diviſion it came from, to the End he may not be impoſed upon, but may charge ſuch Victualler with the Duty for all the Drink he brews; and where he finds juſt Cauſe to ſuſpect a Fraud, he muſt charge the whole Increaſe he finds in Stock, and let the Victualler diſcharge himſelf by Courſe of Law as he can. The Officer muſt keep all his Victuallers Caſks fairly numbered with White Lead and Oil, and reduce the Numbers to as few as he can, that the Stocks may not be extended to an unneceſſary Length. *Note*, That the *Number* and *Contents* of all the Victuallers Caſks, and the Areas of all their Maſh-Tuns, Under-Backs, Coppers, Backs, Guile Tuns, or other Utenſils, in common Uſe, muſt be tranſcribed from his Dimenſion-Book into every new Survey-Book.

Victuallers where to be ſtocked.

Muſt never be above three Days wide in taking Stock.

Caſks muſt be kept fairly marked.

Number reduced to as few as poſſible.

The

The Officer muſt give every one timely Notice of the ſitting Days, &c.

The Officer muſt give all the People in his Diviſion, who are to pay Duty, or make their Entries, timely Notice of the ſitting Days. And he muſt attend at the *Exciſe-Office* at ſuch Times, as the Collector ſhall appoint, and bring his Survey and Dimenſion-Books, his Acts of Parliament, Inſtructions, General Letters, and Inſtruments at his utmoſt Peril.

The Officer's Duty concerning By-Drinks.

Muſt receive no Money for By-Drinks, without giving a Receipt.

Muſt keep Stock on By-Brewers.

When his Surveys need only to be cautionary.

Of thoſe who ſell Drink at Fairs, &c. and brew as well for their own Families.

May be admitted to make *Poſt-Entries*.

The Officer muſt diligently enquire after, and be careful to take an Account of all Drink ſold at Fairs, Wakes, Revels, or any other publick or private Meetings, and then to demand and receive the Duty for the ſame; but he muſt not, at his Peril, receive the Whole, or any Part of the Duty due for ſuch *By-Drink*, without giving a Receipt at the ſame Time for the Money he receives; expreſſing therein the Quantity and Quality of the Drink, the Day when Charged, and the Day he receives the Money: Alſo he muſt keep Stock on all By-Brewers, taking Gauges on as many as he can, and enter them in his Book in the ſame manner as Victuallers; only to diſtinguiſh them by the Words (*By-Br.*) but when the Drink is in Caſks, and he has charged all that they have in their Poſſeſſion, his Surveys need only be cautionary, and not ſo frequent as upon Victuallers. The Perſons who uſually ſell Drink at Fairs, Wakes, &c. and brew as well for their own Families as for Sale, have a Right to enter, and pay the Duty for what Drink they ſell at the Fair only; and are not required to enter all in their Poſſeſſion: But then the Officer is to be ſatisfied that they ſhew him all their Drink, that he may have recourſe to, and keep Stock upon it: And the Officer may admit them to make *Poſt-Entries*, if they will ſell any more than they entered at firſt. But if by any Means he diſcovers that a greater Quantity is ſold than was entered, he muſt charge it, whether ſtrong or ſmall, and acquaint the *Collector* or *Superviſor* therewith, that the Offenders may be proſecuted as the Law directs.

Muſt enter all theſe Things in the Collector's By-Drink Book.

Note. All theſe Particulars, upon the Collection-Day, the Officer muſt enter into the Collector's Book for *By-Drink*, and ſign his Name thereto, and pay the Money he has received for ſuch *By-Drinks* to the Collector.

None muſt be returned as By-Brewers, but ſuch as ſell Drink on accidental Occaſions.

☞ The Officer muſt not offer to return any as *By-Brewers*, but ſuch as ſell only at Fairs, and on other accidental Occaſions; nor muſt he keep any Perſon as a *By-Brewer*, who continues to brew Drink for Sale above two Rounds together, at his Peril. The Officer muſt not receive the Duty due from any Perſon whatſoever, except for By-Drinks only, nor bring any Perſon's Money to the Collection, nor take up any Arrears between the Rounds, without Directions firſt had in Writing, ſigned by the Collector, at his Peril.

Muſt not receive any Money but for By-Drinks, &c.

Officers muſt not keep any Publick-Houſe, nor accept any Treat, &c.

☞ The Officer muſt not keep a Publick-Houſe, nor deal in any Commodities, nor muſt he trade with nor borrow any Money of, nor accept any Treat, Fee, or Reward from any Perſon chargeable with any Duty under his Survey, or from any one em-

employed by them. Nor muſt he ſurvey his Relations, or Securities, at his Peril.

The Officer, when he firſt comes into a Diviſion, muſt enter his Name in the Front of each Survey-Book, the Time when he received it, and the two firſt Letters of his Name to the *firſt* Surveys and Gauges he takes throughout the ſaid Books: But if he officiates in another Officer's Diviſion on any Occaſion, in that Caſe he muſt ſet the two *firſt* Letters of his Name to his *firſt* and *laſt* Surveys and Gauges in each Book; alſo his Name in the Front, with the Time that he officiated in that Diviſion. The Duty of the Officer when he firſt comes into a Diviſion, or when he officiates for another.

The Officer when he is removed from one Diviſion to another, which he muſt never ſollicit for or againſt, by any other Method than his own Letter to the Board; he muſt mention in the Fronts of the Books of that Diviſion he leaves, the Time he left the ſame, and he muſt put his Name thereto, and muſt leave the Acts of Parliament, Inſtructions, Books of Permits and Certificates, general Letters, and whatever Books and Papers belong to that Diviſion, taking a Receipt for the ſame from the Superviſor, or the ſucceeding Officer, who received them from him. *Note*, in Caſe any Commiſſioner upon a Survey ſhall give him any Directions in Writing, which may reſpect that Diviſion or Place where ſuch Directions ſhall be given, he muſt immediately enter the ſame at the End of his printed Inſtructions, that both the Superviſor and his Succeſſor may obſerve the ſame as well as he himſelf has done. The Officer muſt never ſollicit for a Remove but by his own Letter. Muſt take a Receipt for the Stores. Of Inſtructions given by a Commiſſioner on his Survey.

The Officer when he is directed by Order of the Board, to qualify and inſtruct any Perſon for a Gauger's Employment, he muſt not offer to certify him qualified for ſuch Employment before he can caſt up Malt, and exciſe Gauges by the Sliding Rule; and he muſt not ſuffer ſuch Pupil to ſurvey or take any Gauge for him, nor muſt he take any Gauge or Surveys from his Pupil's Book, nor permit him to tranſcribe any from his; but at all Times, whilſt inſtructing, he is to be kept as punctually to his Surveys, *&c.* as if he were then actually an Officer; and for his inſtructing ſuch Perſon, he ſhall not receive from him more than 20*s.* when he comes to be inſtructed, and 20*s.* more when he is certified for and inſtructed. The Officer's Duty, who has the Inſtruction of Pupils. Pupils muſt not ſurvey or take Gauges for the Officer, nor the Officer to take Gauges, *&c.* from the Pupil's Book. Officer's Fee is 40*s.*

As different as the Buſineſs of a common Brewer is from that of a Victualler, who retails what he brews; ſo different is the Buſineſs and Duty of an Officer who ſurveys him: The Officer then that has the Care of common Brewers is to ſurvey thoſe where he reſides twice a Day, though they are ſilent, if his other Buſineſs will permit him ſo to do, and once at leaſt every Sunday when they are at work, he muſt make frequent Returns to the Brew-Houſes, and at uncertain Times, and at each Return he muſt take a Gauge of every Guile that is depending, and of what Worts are off of the new Guile, though no more be off than when he was laſt there, always endeavouring to take a Gauge of each Wort, ſo ſoon as it is poſſible, after it comes out Great Difference between the Buſineſs of thoſe Officers who gauge Victuallers, and thoſe who ſurvey common Brewers. The Officer's daily Duty where he reſides. Muſt make uncertain Returns upon them when at work.

of

Muſt take a Gauge as ſoon as it comes out of the Copper, and alſo a cold Gauge.

When a Wort is in the Copper, of which he has not had a Gauge.

Tho' not ſeparated from the Hop.

His Charge, if he apprehends Wort has been privately removed.

Officer muſt enter the Condition of the Under-Back.

When a Fraud is to be ſuſpected.

of the Copper, and a cold and confirming Gauge as well as a warm one on each ſeparate Wort; and where there is a Wort in the Copper of which he has not had a Gauge, he muſt return, though it be in the Night, at ſuch Times as he may get the beſt Gauge thereof; but in caſe the ſaid Wort hath done boiling, and is not ſeparated from the Hops, either in the Copper or Hop-Back, he muſt take the true Gauge thereof, and write *(hot)* over it, but not make any Charge therefrom, unleſs from his following Gauges he hath good Reaſon to belive that ſome Part of the ſaid Wort hath been privately conveyed away; and in ſuch caſe he muſt charge from his Gauge, making ſuch Allowance only as he thinks reaſonable on account of Heat and Hops. The Revenue may be greatly injured by a Fraud that has frequently been committed by leaving Part of a Wort in the Under-Back; the Officer therefore muſt frequently examine the ſame, eſpecially when the laſt Wort is in the Copper, and enter the Condition thereof in his Book; and where he finds an Hop-Liquor left in the Copper, he muſt obſerve carefully how the ſame is diſpoſed of, that no Fraud be covered thereby, as has been frequently practiſed.

The dipping Places muſt be marked.

The Gauges of two Backs muſt not be taken by only dipping in one.

The Backs to be examined, to ſee if any Alteration is made therein.

The Officer muſt obſerve to keep the dipping Places of the Veſſels and Utenſils, with the Additions and Abatements, if there be any, fairly marked on them; nor muſt he take the Gauges of *two* Backs by dipping only in *one* of them, unleſs the Communication be ſo wide, as not to be ſtopped without being diſcovered; he muſt frequently examine the Poſition of the Backs *, to ſee if any Alteration hath been made ſince they were laſt ſet, which is to be done by taking Dips in ſeveral Places, or ſeeing the Worts in them let down into a Tun.

The Characters uſed to diſtinguiſh the different Sorts of Worts.

If 2 Worts.

If 3 Worts.

If 4 Worts.

Strong Worts.

If ſmall Wort.

If 3 ſmall Worts.

If warm Gauge.

If Wort to be returned.

The Officer muſt make himſelf Maſter of the ſeveral *Characters* uſed to denote the *different* Worts, which are as follow: In entire Guiles of *ſtrong*, or in *party* Guiles, as the Worts come off, you muſt Character them in the following manner: If but *two* Worts, the firſt *h.* the ſecond *bl.* If *three*, the firſt *h.* the ſecond *m.* the third *bl.* If *four*, the firſt *h.* the ſecond *m.* the third *n.* and the fourth *bl.* and this Character ✕ muſt be uſed for all Worts of the Quality of *Strong* that are down in the Tun, though the Length be not declared, the ſame Character muſt be uſed for all Worts declared Strong, whether they be in the Backs or Tuns; and this Character VI. for all ſmall Worts when they are declared ſo. But in *entire* Guiles of *ſmall*, the *firſt* Wort muſt be charactered $\frac{\cdot}{VI}$. the *ſecond* $\frac{\cdot\cdot}{VI}$. the *third* $\frac{\cdot\cdot\cdot}{VI}$. *&c.* W. ſignifies the Gauge was taken when the Wort was warm, and R. that it is intended to be returned on the Goods of a ſucceeding Brewing †.

The

* Is what great Brewers cool their Worts in, and thoſe are frequently placed one under another.

† When two or more ſtrong Worts, the firſt Wort (or Hop) muſt be marked with *h*; the ſecond Wort (or Maſh) with *m*; the third Wort (or Neighbour) with *n*; and when the whole Brewing is intended for ✕ (or ſtrong) the laſt Wort (or blue) muſt be marked *bl.* There are like-

The Officer as ſoon as he can, after all the Worts of any Guile are off, muſt demand of the Brewer or his Servant, how much *ſtrong* Beer or Ale, and alſo how much *ſmall* the Brewer intends to make of ſuch Guile, and inſert the Anſwer he receives in his Book, with the Perſon's Name that gave the ſame. And if any Part of a Guile be cleanſed before the Brewer or his Servant has made ſuch Declaration as aforeſaid, (he having been required by him ſo to do) the Officer is to charge the whole Guile ſtrong; or if after the Length * has been declared, he find any Increaſe of ſtrong contrary to Law, or any Part of the Guile laid off over and above the Length declared, he muſt acquaint the Collector and Superviſor therewith the firſt Opportunity; and if the Guile be declared all *ſmall* when the Worts are ſeparate, and ſome of them above the Quality of ſmall, he muſt acquaint the Perſon, who declares that the Worts then above the Quality of ſmall will be charged ſtrong, which probably will prevent his making any Declaration till the Worts are all down and mixt in the Tun; but in caſe he inſiſts on that Declaration, the Officer muſt enter the ſame in his Book, remarking ſo much of that Guile ſtrong as appears to him to be above the Quality of ſmall at that time; and he muſt charge it accordingly, if he has not an Opportunity of ſeeing the Worts mixt, or of taking a Gauge of them after mixt; and if when the Length is declared there be *Finings*, which cannot be gauged, he muſt require the Brewer to declare the Quantity of *Finings*, and he muſt accordingly enter them in his Book.

To demand how much ſtrong and how much ſmall the Brewer intends to make of each Guile.

The Officer's Duty when the Guile is cleanſed.

If any Increaſe after the Length is declared.

If a Guile is declared all ſmall, and he finds ſome ſtronger.

In caſe the Brewer perſiſts in ſuch Declaration.

Finings muſt be gauged or enter'd

☞ In making up the Charge of each Guile, when a Brewer in a Party Guile makes one or more Worts ſtrong, and does not uſe any of his ſmall Wort to make up the Quantity of ſtrong intended; and upon the Declaration of his Length, the Officer has no reaſon to believe from the Gauges he has taken, that any of the ſmall Wort or Worts are miſſing, or that any of the ſtrong Wort or Worts are or have been mix'd with the ſmall; in this caſe, the Officer muſt collect the beſt Gauge of each ſtrong Wort, and the beſt Gauge of each ſmall Wort, and make his Charge of ſtrong and ſmall from the ſeparate Totals of them, or from any better Gauge that he afterwards takes of the ſtrong or ſmall, when Part thereof is up and Part down, or when all is down in the Tuns. But when a Brewer makes up his Length of ſtrong, by Part of the Wort or Worts intended for ſmall, or *è contra*, the Officer muſt collect the beſt Gauge of each Wort, and add them together, and from that Total, *if it be moſt*, or from any mix'd Gauge of two or more Worts together, or from any Gauge, that makes a better Total, deduct the ſmall declared, and

How the Party Guiles muſt be charged.

When the Brewer makes up his Length of ſtrong with that intended for ſmall.

likewiſe ſome other Characters frequently to be met with in the Officers Books, *i. e.* L. for Liquor, (that is Water;) W. for ⋇ Wort; *pro.* for a piece (or part) of a Wort; T. Sp. *dg.* for Tap-ſpending or the Wort running from the Maſh Tun; vi. *r* for ſmall Beer raw, or unboiled; ⊙ denotes the Goods to be gone; ⋇⋇ for *Stout*, or Beer that is above the common Quality.

* Is the Quantity of *Gallons* or *Barrels* brewed at a Time.

and charge the Remainder ſtrong; but if the ſtrong declared, or any ſubſequent Gauge thereof *exceed* ſuch Remainder, charge from that; or if there be any ſubſequent Gauge of the ſmall *better* than when the Length was declared, that is to be the Charge.

If the Brewer brews in little Quantities, and ſeldom.

There are ſeveral common Brewers who brew but ſeldom, and little Quantities at a Time; I ſay, where this happens, and the Officers have much other Buſineſs, the Collector and Surveyor may give them leave to ſurvey ſuch Brewers but once a Day, when ſilent, and not ſo often on brewing Days as they are enjoined to ſurvey great common Brewers; yet they muſt take Care to get a Gauge of each Wort as ſoon as poſſible, after it comes out of the Copper.

A Gauge muſt be got as ſoon as the Wort is out of the Copper.

Of ſeizing exciſeable imported Liquors.

N. B. When the Officer ſeizes (ſee *Page* 226) any exciſeable imported Liquors or other Goods, he muſt acquaint the Board therewith the next Poſt, that Directions may be given touching the Condemnation of them.

Any Officer intermeddling in Elections forfeits 100 l.

☞ No Officer of the Exciſe muſt endeavour to perſuade any Elector to give, or diſſuade any one from giving his Vote, for the Choice of any Perſon to be a Member of Parliament; for ſuch Officers as do ſo intermeddle with Elections, not only forfeits the Sum of 100 *l.* but are alſo by Act of Parliament render'd incapable of any Employment in the Exciſe, or any Office of Truſt under his Majeſty whatſoever.

CHAP. IV.

Shewing the Riſe *and* Progreſs *of the* Exciſe *on* Beer *and* Ale, *&c.*

1660. IN the Year 1660, the Commons, to make his Majeſty King *Charles* II. grateful Returns for his Grace and Favour, granted him from *Chriſtmas*, 1660, during his Life †, certain Rates of Exciſe upon *Beer*, *Ale*, *Cyder*, *Perry*, *Metheglin* or *Mead*, *Vinegar-Beer*, *Strong-Water*, *Aqua Vitæ*, *Beer* and *Cyder* imported, *Spirits* made from *Wine* or *Cyder* imported; and *Strong-Water perfectly made* and imported; and obliged all common Brewers to make Entries *weekly*, and other Retailers of Beer, Ale, Cyder, Perry, Metheglin, or Strong Waters, *brewing, making, or retailing the ſame*, to make Entry *monthly*, of all the Beer, Ale, Cyder, Perry, Metheglin, Strong Waters, or *other the Liquors aforeſaid*, brewed or made in that Week or Month, under the following Forfeitures, *viz.* The common Brewer 5 *l.* the Inn-keeper 5 *l.* and the Victualler or other Retailer 20 *s.* * who are obliged to pay and clear off the Duty within

† The like Duties have been granted to all the ſucceeding Kings and Queens.

* Theſe Penalties for not making due Entries have, by a ſubſequent Law, received the following Additions; the common Brewer 10 *l.* the Inn-Keeper 5 *l.* the Victualler or other Retailer 20 *s.*

within the *Week* or *Month* after ſuch Entries are made, or to pay double the Value of the Duty. BUT none of the ſaid Traders are obliged to go out of a Market-Town, nor further than the next Market-Town (on the Market-Day) to the Place where he lives, in the ſame County, to make ſuch Entries. AND the Commiſſioners are impowered to appoint Gaugers *, who by Day or Night (but if by Night, then in the Preſence of a Conſtable †) may enter any Houſe, Brew-houſe, Diſtill-houſe, and all other Places uſed by any Brewer, Inn-keeper, Victualler, or other Retailer of Beer, brewing or making the ſame; or by any Diſtiller of Strong-Waters, or Retailer *of other the Liquors aforeſaid*, to gauge all their Veſſels, and take an Account of their reſpective Liquors, who ſhall make Returns thereof in writing to the Commiſſioners, and leave a Copy of ſuch Return with the reſpective Traders: and if any ſuch common Brewer, or Retailer, ſhall not permit the Gauger to enter his Brew-houſe, or any other Place afore-mentioned, to gauge his Veſſels, or take an Account of any ſuch Beer, Ale, Worts, Cyder, Perry, Strong-Water, Aqua Vitæ, Metheglin, or *other the Liquors aforeſaid*, the Gauger may forbid ſuch Brewer, Retailer, or Diſtiller, to ſell any Beer, Ale, *or other the Liquors aforeſaid*; and if any Brewer, Retailer, or Diſtiller ſhall ſell, carry, or deliver out the ſame, or any Part thereof, after ſuch Warning, (not having paid and cleared the Duty of Exciſe) they forfeit double the Value of the Goods, and alſo 5 *l.* ‖ to be levied upon his Goods, as is hereafter directed. AND it is declared, for the avoiding all Diſputes, That 36 Gallons ſhall be returned for a Barrel of Beer, and 32 Gallons for a Barrel of *Ale*, within the Limits of the Bills of Mortality ‡. And to encourage the common Brewers to make due Entry, and Payment, they are to be allowed for Waſte by Fillings and Leakage, (if within the Limits of the Bills of Mortality) 3 Barrels upon every 23 Barrels of ſtrong or ſmall Beer, and 2 Barrels upon every 22 Barrels of Ale **. But if the common Brewer ſhall be convicted of wilfully making a falſe Entry, he ſhall forfeit his ſaid Allowance for *ſix* Months next enſuing, beſides the 5 *l.* †† before mentioned; nor ſhall any ſuch Brewer deliver any Beer or Ale to the Retailer, before the Exciſe for it is paid. BUT if the Duty of Exciſe be paid before Sale, no Perſon ſelling Ale and Beer in Fairs (being not a uſual Brewer or Retailer) ſhall be ſubject to the above Penalties. THE Commiſſioners, and Sub-Commiſſioners may compound for this Duty with any Inn-keeper, Victualler, Ale-houſe keeper, or Retailer of Beer, Ale, *and other the Liquors aforeſaid*, in ſuch manner as may be moſt for the Improvement of the Revenue. ALL the aforeſaid Forfeitures and Offences are to be heard and determined as follows, *viz.* All Forfeitures made,

* No Perſon is capable of acting in the Exciſe till he has firſt taken the Oaths on *Page* 215, appointed inſtead of the Oaths of *Allegiance and Supremacy*; *and the Oath of Office*, before *two* or *more* Juſtices of the Peace in the County where his Employment ſhall be, or before one of the Barons of the Exchequer; and every Juſtice is to certify the taking of ſuch Oaths to the next Quarter-Seſſions.

† If any Conſtable, or other Miniſterial Officer of the Peace, upon due Requeſt made by any Officer of the Exciſe, to go along with him, and be preſent where their Preſence is declared neceſſary by Law, and ſuch Officer ſhall not go and be preſent he ſhall forfeit 20 *l.* for every Offence, See 11 *Geo.* I. *Cap.* 30.

‖ This Penalty for ſelling after Warning, has ſince received an Addition of 10 *l.*

‡ 34 *Gallons* is a *Barrel* of *Beer* and *Ale* elſewhere. See *Page* 245.

** Two *Barrels* and an *Half* upon every 23 Barrels is allowed for *Waſte* elſewhere. See *Page* 245.

†† To this 5 *l.* Five Pounds more has been added: But theſe ſeveral farther Forfeitures and Penalties are directed to be recovered and applied as above directed.

made, and Offences committed, within the immediate Limits of the chief Office in *London*, (*i. e.* within the Bills of Mortality **) are to be determined by the Commiſſioners, or the Major Part of them, or by the Commiſſioners of Appeals, in caſe of Appeal, and not otherwiſe. AND all Forfeitures and Offences committed *elſewhere*, are to be determined by *two* Juſtices of the Peace reſiding near the Place (in the ſame County) where ſuch Forfeitures are made, or Offence committed: But in Caſe the Juſtices ſhall refuſe or neglect to act therein for 14 Days after Complaint, the Sub-Commiſſioners may then hear and determine the ſame: From whoſe Determination the Party if he finds himſelf aggrieved, may appeal to the next Quarter Seſſions, whoſe Determination ſhall be final. AND the Commiſſioners, Juſtices of the Peace, and Sub-Commiſſioners (having Juriſdiction) are required, upon Complaint or Information *, to ſummons † the Offender, and on his Appearance or Contempt, to examine the Matter upon Oath, and to give Judgment; and by Warrant to levy the Forfeitures upon the Offender's Goods, and to ſell them, if they are not redeemed within 14 Days; and they may, for want of ſufficient Diſtreſs, impriſon ‖ the Offender till Satisfaction is made. BUT the ſaid Commiſſioners and Juſtices, or any two of them may mitigate the Fines and Forfeitures, ſo that ſuch Mitigation be not leſs than double the Value of the Duty, beſides the reaſonable Coſts and Charges of the Officer or others. *Note*, That all Forfeitures and Penalties, after the neceſſary Charges for the Recovery thereof are deducted, ſhall be employed *three Fourths* to the King, and *one Fourth* to the Informer. And if any Perſon is ſued for proſecuting any Offender, he may plead the General Iſſue, and give the Matter in Evidence for his Defence: And if a Verdict ſhall paſs for the Defendant, or the Plaintiff be nonſuited, the Defendant ſhall have double Coſts, and no *Certiorari* allowed to ſuperſede ſuch Proceedings of the Juſtices ‡.

TO ſupply certain Defects in the Laws then in being relating to the Exciſe, in the Year 1663 it was ordain'd, That no common Brewer, Innkeeper, Victualler, or other Retailer, after *the firſt* of *September* 1663, ſhould erect or alter any brewing Veſſels, and make uſe of them for brewing Beer, Ale, or Worts, without firſt giving Notice at the next Office of Exciſe, nor make uſe of any private Storehouſe, Cellar, or other Place, for the laying of Beer, Ale, or Worts in Caſk, upon Pain of forfeiting 50 *l.* for every Tun, Fat, Back, Copper or Cooler ſo ſet up and made uſe of: The Perſon likewiſe, in whoſe Occupation the Houſe or Place

1663.

** This is extended to the Pariſh of *St. Mary le Bon*, Middleſex. See *Page* 300.

* In what Time *Informations* muſt be laid. See *Page* 246.

† What ſhall be *a good Summons*. See *Page* 245.

‖ The firſt Warrant muſt be return'd, that there is not ſufficient Diſtreſs to be found, before a Warrant to take the Body muſt iſſue.

‡ But Proceedings may be ſuperſeded by a *Certiorari*, if either the Juſtices or Commiſſioners proceed in any Matter not within their Juriſdiction: as, if the Juſtices grant Warrants to the Collectors, requiring them to repay the Duty in Caſes not relievable by Law, the Collectors may refuſe to obey ſuch Warrants; and if the Special Matter appears ſufficiently upon the Face of ſuch Warrants, it will be proper to remove the Proceedings into the King's Bench. And if a Trader appeals, after the Judgment of two Juſtices, to the Quarter Seſſions, a *Certiorari* may be brought to take the Opinion of the King's Bench, whether the *Quarter Seſſions* have any Juriſdiction or not; and if the Court be of Opinion that they have no Juriſdiction, (which they really have not, except by the Acts laying the Duties on Hides and Malt,) any Order by the Seſſions of Reverſal of the Juſtices Judgment ought to be quaſhed. And if the Commiſſioners or Juſtices intermeddle with any Thing out of their Juriſdiction, then all is *Coram non Judice*, and may be given in Evidence. See *Carthew's Reports* 346.

Place is where such private Tun, Back, Cooler, or Storehouse shall be found, shall forfeit 50 *l.* and the concealed Vessels so discovered or altered, with the Drink found therein, may be seized and delivered to the Overseers of the Poor, to be sold for the Use of the Poor. ALL Gaugers, under the Forfeiture of 40 *s.* for every Refusal or Neglect, must deliver to the common Brewer weekly, a Copy under his Hand of the Return he has made to the Commissioners. And no Brewer shall be prosecuted for any short or Mis-Entry *, if, within a Week after he receives such Copy, he shall rectify his Entry according to the Officer's Return, or otherwise discharge himself. AND the Contents of all Brewers Tuns, Coppers, Fats, Backs, Coolers, *&c.* are to be justly computed by two able Artists, one to be appointed by the Commissioners or Sub-Commissioners, and the other by the Brewer, who are to be sworn before a Justice, to compute the just Contents, and shall deliver a Copy of the particular Contents of all such Vessels to each Party under their Hands. AN Office of Excise shall be kept in every Market-Town on every Market-Day, and a Person shall be deputed to attend it, to receive Entries, and for the performing all other Matters and Things touching the Excise. Which Office shall be kept open from 9 to 12 in the Morning, and from 2 till 5 in the Afternoon †: And if the Person appointed neglects to attend it every Market-Day, shall forfeit 10 *l.* for every Refusal or Neglect, *viz.* 5 *l.* to the King, and 5 *l.* to the Informer. And any Person who can produce a Witness to prove upon Oath a Tender of his Entry or Payment on such Market-Day, shall be exempt from the Penalties incurred for such Entry or Payment not having been made, or paid on such Market-Day. IT is further directed, That, without giving Notice to the Officer, no common Brewer shall sell, deliver, or carry out any Drink to his Customers in Cities, Towns Corporate, or Market-Towns, from the 25th of *March* to the 29th of *September*, but betwixt the Hours of 3 in the Morning and 9 at Night; nor from the 29th of *September* to the 25th of *March*, but betwixt the Hours of 5 in the Morning and 7 at Night, under the Pain of forfeiting 20 *s.* for every Barrel, which Penalty is to be recovered as hereafter is directed. AND if any common Brewer, Inn-keeper, Victualler, or other Retailer, after the first of *Sept.* 1663, shall convert any small Beer or small Worts into strong by Mixture, after the Gauge has been taken, without giving Notice to the Gauger of the Quantity he has so mixed; or if any Brewer or Retailer shall conceal, hide, or convey away any Drink or Worts not gauged, from the Sight of the Gauger, he shall forfeit 20 *s.* for every Barrel so mingled, converted, or conveyed away. to be recovered as hereafter is appointed. AND it is likewise declared, That all the Brewing Vessels, and Utensils for Brewing, shall be liable to all the Debts and Duties of Excise in Arrear, (into whose Hands soever they shall come, and by what Title soever they shall be claimed) and likewise to all Penalties and Forfeitures incurred by any Person using such Brew-house, as if the Offender was the real Owner of the same. AND it is directed, that no common Brewer, or Compounder, do brew for any other Brewer or Retailer, without first giving Notice to the Officer of the Quantity or Quality of the Drink he intends so to brew, and paying down the full Excise for all such

* See this *Proviso* qualified on *Page* 246.

† The Head Office of Excise to be erected in *London*, or within ten Miles of it, to which all other Offices shall be accountable; and the said Head Office was at first to be kept open from 8 in the Morning till 12 at Noon; and from 2 till 5 in the Afternoon. See this farther altered on Page 253.

Beer or Ale, upon pain of forfeiting 5 *l.* for every Barrel by the Brewer, as well as by the Perſon whoſe Uſe the Drink was brewed for; one Half to the King, and the other Half to the Informer, to be recovered in any Court of Record. IT is likewiſe declared, That if any Brewer or other Perſon ſhall bribe or corrupt, or give any Money, Fee, or other Reward whatſoever, to any Gauger, or other Officer, to make a falſe Return of any Beer, Ale, or *other exciſeable Liquors*, or to omit his Duty, ſhall forfeit 10 *l.* * for every Offence. And every ſworn Officer ſo offending, ſhall forfeit 10 *l.* for every Offence; which Offences muſt be proved by the Oaths of *two* lawful and creditable Witneſſes, before *two* Juſtices of the Peace, or the chief Magiſtrate of the Place, who are fully authorized to determine the ſame, and by a Warrant under their Hands and Seals are to cauſe the Penalty to be levied by Diſtreſs; and they may commit the Offender to Priſon for *three* Months, without Bail or Mainprize, for want of ſufficient Diſtreſs. IT is likewiſe declared, that in any Matter of Exciſe, no Appeal whatever ſhall be admitted, till the *ſingle* Duty is depoſited in the Commiſſioners Hands, and Security given to anſwer ſuch Fine as ſhall be given againſt the Appellant on the Re-hearing: And if upon the Appeal the original Judgment ſhall be reverſed, the *ſingle* Duty is to be reſtored, and the Perſon proſecuting to pay *double* Coſts; but if upon the Appeal the Judgment is affirmed, the Appellant is to pay *double* Coſts to the Commiſſioners complain'd of: And all Differences, Appeals, and Complaints touching the Payment of Exciſe, muſt be determined in the proper County, or in the ſeveral Ridings and Diviſions of *Yorkſhire* and *Lincolnſhire*, where they ſhall ariſe, and not elſewhere. ALL Colleges and Halls in the Univerſities, which, before the Duty of Exciſe was impoſed, did brew their own Beer and Ale within their own Precincts, and ſize it out to their own Members only, are not liable to the Duty of Exciſe. AND it is likewiſe declared, That any Commiſſioner, or other Officer of Exciſe, taking any Fees for Bonds or Receipts relating to the Exciſe, ſhall forfeit 10 *s.* for every ſuch Offence; and the Juſtices of the Peace in their reſpective Diviſions, are enjoined to meet once a Month to determine all Matters relating to the Exciſe. AND it is directed, That all the Penalties, and Forfeitures, not before applied, ſhall be diſpoſed of as follows, viz. *one Third* to the King, *one Third* to the Poor of the Pariſh where the Offence ſhall be committed, and the *other Third* to the Informer; and all Fines, Penalties, and Forfeitures, for the Recovery whereof no Remedy is hereby appointed, ſhall be recovered in any Court of Record within the County, City, or Corporation where the Offence ſhall be committed, or by ſuch other Ways and Means as has been heretofore appointed. AND all Appeals within the Limits of the Exciſe Office in *London*, muſt be brought within *two Months* after Judgment is given; and all Appeals in any other Counties, muſt be brought within *four Months* after the firſt Judgment, and Notice of ſuch Appeal muſt be given or left at the Dwelling-Houſe of the Party concerned. And it is declared, That any Commiſſioner or Officer intermeddling in the Exciſe, till he has entered his Certificate for taking the Oaths on *Page* 215, *&c.* ſhall forfeit 50 *l.* for every Month he neglects to take the ſame.

IN

* By an Act 11 *Geo.* I. any Perſon liable to any Duty of Exciſe attempting to bribe an Officer, forfeits 500 *l.* *See alſo* an Act of the 9 *Geo.* II.

IN the same Year, it was declared, That if a Summons is left at the House of a Defendant, or at his usual Place of Residence with his Wife, Child, or menial Servant, the same shall be deemed as good and sufficient, as if the Summons had been delivered into the Defendant's own Hands. 1663.

FOR the preventing of Frauds frequently practised in relation to the Duties of Excise, which ought to be paid for Beer or Ale; in the Year 1670 it was ordained, That if any Person inhabiting in any Market-Town, or in any City, or Town Corporate, or Parts adjoined thereunto, (where there is or shall be a common Brew-house) having any private Brewing Vessels for the brewing Beer or Ale, to be spent in his private Family, shall suffer any Drink to be brewed therein, other than for his own Family, Servants, Labourers, or by way of Charity or Hospitality, shall forfeit 50 *l.* for every such Offence, to be recovered in any Court of Record. But such Suit must be commenced within six Months after the Offence, and be tried within the County where it was committed; and one half of such Forfeiture to go to the King, and the other half to the Informer that shall sue for the same. AND for the preventing Frauds by brewing Ale, Beer, or Worts of an extraordinary Strength, and mixing the same with small Beer, Ale, or Worts, after they have been gauged, it was *ordained*, that no Retailer, after receiving it from the common Brewer, shall mix any Beer, Ale, or Worts of extraordinary Strength, with any small Beer, Ale, or Worts, in any Vessel or Tub containing three Gallons or more, on forfeiture of double the strong Beer or Ale Duty, for every Barrel so mixed, and so proportionally for a greater Quantity, which Offences are to be heard and determined before the Justices of the Peace, and Commissioners, as in other Cases of the Excise, and the Forfeiture to be recovered and applied accordingly. And the Commissioners and Justices are impowered to summon Evidence for discovery of Offences, other than the Party or Parties accused, who upon Refusal or Neglect to give Evidence when required, shall forfeit any Sum of Money not exceeding forty Shillings * for every such Offence, to be recovered and applied as other Penalties against the Excise Laws. And no Writ of *Certiorari* shall supersede Execution upon any Orders of the Justices. 1670.

FOR the avoiding of all Disputes, it was ordained in the Year 1688, That 34 Gallons shall be deemed a Barrel of Beer, or Ale, whether strong or small, OUT OF the Cities of *London* and *Westminster*, and Bills of Mortality; and that OUT OF *London* and *Westminster*, and the Bills of Mortality, the common Brewer shall be allowed for Waste by Filling and Leakage, *two* Barrels and an half of Beer and Ale upon every *twenty-three* Barrels, whether strong or small: But the Contents of the Barrel of Beer or Ale, and the Allowances for Waste by Filling and Leakage, within the Cities of *London* and *Westminster*, and the Bills of Mortality, to remain the same as it was heretofore settled. AND since all Gaugers have Power to gauge all Coppers and Vessels belonging to, or used by any Brewer, Inn keeper, Victualler, or other Retailer, and to take an Account of all Beer, Ale, and Worts by them brewed or made, and to make a Return to the Commissioners in Writing, and such Returns to be a Charge upon such Brewers: Now for preventing of Frauds and Disputes which may arise, The Gaugers are hereby authorized when any Worts are missing, and not fairly let down into the Tun, and cannot be found, to make a Charge of so much Beer, 1688.

* Altered to 10 *l.* See *Page* 247.

or Ale, as ſuch Worts ſo miſſed would reaſonably make; and for the avoiding as much as may be of all Diſputes, the Gaugers are empowered to make the Charges from their Gauges of the warm Worts in the Backs, Coolers, or other Veſſels, allowing the Trader *one Tenth* for Waſh and Waſte; which Worts, nor any Part thereof, are not to be afterwards charged with the Payment of any Duty when brewed into Beer or Ale. IT is likewiſe declared, That no Brewer ſhall claim or have any Benefit by the Proviſo * made in the Year 1663, touching any Miſ-Entry, or ſhort Entry, and rectifying the ſame after the Delivery of the Copy of the Gauger's Return, unleſs it ſhall appear that ſuch Brewers ſhewed the Gaugers all the Beer, Ale, and Worts of every Guile brewed by him in the Time for which ſuch Copy of the Return was made or given, but ſhall incur all the Penalties formerly impoſed. AND for the avoiding ſome Doubts which have ariſen, it is declared that every common Brewer, Inn-keeper, Victualler, or Retailer, who ſhall make Uſe of any private Storehouſe, Cellar, or Place ſhall forfeit 50*l.* for every ſuch Offence. And every ſuch Brewer, Inn-keeper, Victualler, or Retailer, who, contrary to what was ordained in the Year 1663, ſhall mix, conceal, or convey away any Worts, ſhall forfeit 20*s.* for every Barrel. And the Authority and Power formerly given to the Commiſſioners of the Exciſe, and Juſtices of the Peace, and others to hear and determine Forfeitures and Offences in relation to the Exciſe, is continued for their hearing and determining theſe Offences. AND to the End that common Brewers, and others paying Exciſe, may not be over-charged, the Gauger is obliged to leave with all Brewers, Makers, or Retailers of Beer and Ale reſpectively, or ſome of their Servants, at the Time of their taking the ſaid Gauges, true Notes † in writing of their *laſt* Gauges, ſetting forth the Quantity and Quality of the Liquors ſo gauged, upon Pain of forfeiting 40*s.* for every Neglect ‡. All Complaints of any Over-charge returned upon any Brewers, Makers or Retailers, ſhall be heard and determined by the Commiſſioners of Exciſe, or Appeals, or Juſtices of the Peace in whoſe reſpective Juriſdiction ſuch Brewers, Makers, or Retailers dwell or inhabit. AND there being but one Market-Town in the County of *Angleſey*, it was ordain'd, That for the Eaſe of the Inhabitants, there ſhould be Offices kept for the making Entries and Payments in the Towns of *Holyhead*, *Newborough*, *Llanerchmeth*, as well as in the Town of *Beaumaris*, where only the ſaid Office has been accuſtomed to be kept. SEVERAL Collectors, Gaugers, *&c.* having been forced to pay Money to the Commiſſioners, their Regiſters, or Clerks, under Pretence that it was for writing, ſigning, and ſealing Inſtructions or Orders, for Remedy of which it was ordained, That no Commiſſioner, or other Perſon employed in the Exciſe, ſhall demand, take, or receive any Money, or other Reward whatſoever, from any Perſon other than their Majeſties, upon Pain of forfeiting his Office, upon Proof made by *two* or *more* credible Witneſſes before any *two* of their Majeſties Juſtices of the Peace, and being render'd incapable of executing any Office in the Exciſe for the Future. IT was declared, That no Informations be proſecuted againſt any common Brewer, or Ale-houſe Keeper, unleſs they were laid within *three* Months after the Offence committed; and the Perſon inform'd againſt muſt have Notice given him in writing, or left at his Dwelling-houſe within one Week after ſuch Information is laid, that he may have Time to make

* See this *Proviſo* on *Page* 243. † Or Copy.

‡ See this farther explain'd and enforced on *Pages* 247 and 248.

make his Defence. AND if, after the firſt of September 1689, any common Brewer, or Retailer of Beer or Ale, ſhall uſe in the brewing or working of any Beer or Ale, any Melaſſes, coarſe Sugar, Honey, or Compoſition, or Extract of Sugar, he ſhall forfeit all ſuch Liquor wherein any Melaſſes or coarſe Sugar, Honey, or ſuch Compoſition, or Extract ſhall be put, and alſo the Sum of 100 *l.* * one half to the King, and the other Half to the Informer, to be recovered in any Court of Record, provided that ſuch Suit be commenced within *ſix Months* after the Forfeiture is incurred. 1689.

IN the Year 1696, for preventing the Frauds and Abuſes of Brewers, and others chargeable with the Duties of Exciſe, it was ordained, That if any Brewer, Inn-keeper or Victualler, after the 25th of *March* 1696, ſhall cleanſe, carry out, remove, or convey out of his Brew-houſe, or Place of Brewing, any Part of his Guile before the whole is brewed off, without firſt giving Notice to the Officer when and how much of ſuch Guile he intends to cleanſe and carry out, or remove, he ſhall forfeit 40 *s.* for every Barrel ſo cleanſed, carried out, or removed without ſuch Notice given †. And the Gauger or other Officer is empowered to enter and ſtay in the Houſe, Brew-houſe, Store-houſes, or other Places belonging to ſuch Brewer, Inn-keeper, or Victualler, to ſee the whole Guile cleanſed and carried out; and if any Brewer, Inn-keeper, or Victualler, refuſe to permit the Gauger to enter either by Day or Night, (but if it be in the Night, it muſt be in the Preſence of a Conſtable) and to ſtay in his Brew-houſe, or Place of Brewing, and take an Account of the ſeveral Worts as they are brewed off, and to ſee the ſtrong and ſmall Drink carried out without Mixture, and to gauge the Goods in the Maſh-Tun, he ſhall forfeit 20*l.* without the Informer or Proſecutor's being obliged to prove that the Brewer, Inn-keeper, or Victualler did carry out any Part of ſuch Guile before the Duty was paid for the ſame. And for preventing Frauds by Mixtures or otherwiſe, it is ordained, That if any common Brewer, or Inn-keeper ſhall, upon carrying out his Drink, or after the ſame is carried out, mix any ſmall Beer, or ſmall Worts, with ſtrong Beer or Ale, either upon his Dray, or in the Victualler's Cellar, or other Place he ſhall forfeit 5 *l.* for every Offence. And it is lawful for the Gauger to taſte the Drink upon any Brewer's Dray, whenſoever he ſhall find and meet the ſame; and alſo, on requeſt, to enter the Cellars, or other Rooms of any Inn-keeper, or Victualler that takes Drink from any common Brewer, and taſte the ſame; and if any ſuch Inn-keeper, or Victualler ſhall refuſe to let the Gauger enter the Cellar or other Rooms, or to taſte the Drink, he ſhall forfeit 5 *l.* for every Offence. And the Commiſſioners of Exciſe, and the Juſtices of Peace, are empowered to ſummon any Perſon or Perſons (other than the Party accuſed) to give Evidence; and if the Perſon ſo ſummoned neglect or refuſe to appear, or if upon Appearance, ſhall refuſe to give Evidence when required, he ſhall forfeit 10 *l.* ** to be levied and diſpoſed of as hereafter is directed. GAUGERS were required, by a Law made in the Year 1694 ‖, to leave with all Brewers, Makers, or Retailers of Beer, Ale, or other exciſeable Liquors, or ſome of their Servants, at the Time of their taking their Gauges, true Notes ‡ in writing of their laſt Gauges, containing the Quantity and Quality of the Liquor ſo gauged, on pain of forfeiting 1696.

* See this Abuſe farther provided againſt on *Page* 250. See alſo *Page* 252.

† See this revoked on *Page* 249.

** See *Page* 245. ‖ See *Pages* 246 and 248. ‡ Or Copy.

40s. for every Neglect: And whereas it has ſince been found neceſſary, that ſeveral Gauges ſhould be taken by one or more Officers of every Wort of the ſame Brewing, and that therefore ſuch Notes cannot ſufficiently inform ſuch Brewer or Retailer how much he is charged, it was ordained, That after the 25th of *March* 1696, every Gauger, within *three Days* after the End of every Week, ſhall leave with the Brewer or Retailer, or their Servants, a true Copy under his Hand of each reſpective Charge by him made upon ſuch Brewer or Retailer, containing the Quantity and Quality of the Liquors by him charged in that Week reſpectively; and if any Gauger neglects or refuſes to leave ſuch Copy, or ſhall charge any Brewer or Retailer more than ſuch Copy contains, he ſhall forfeit 10*l.* for every ſuch Offence or Neglect *, to any Perſon that ſhall ſue for the ſame in any Court of Record at *Weſtminſter*. And no Gauger who ſhall leave ſuch Copy of his Charges as above directed, ſhall be liable to any Penalty formerly impoſed for not leaving Notes of their laſt Gauges, at the Times of their taking ſuch Gauges. AND for the more effectual preventing and diſcovering of all private Backs, Tuns, and other private and concealed Veſſels, or other Receptacles; and of all Drains, Pipes, or other Conveyances to or from the ſame, uſed by any Brewer, Diſtiller, or other Maker, Retailer of exciſeable Liquors, to defraud his Majeſty of the Duties payable for the ſame, the Officers of the Exciſe are impowered, in the Day-time, and in the Preſence of a Conſtable, or other lawful Peace Officer, who are required to be aiding and aſſiſting therein, having a juſt Suſpicion, and upon Requeſt firſt made, and the Cauſe declared, to break open the Door, or any Part of ſuch Brew-houſe, Diſtill-houſe, Store-houſe, Warehouſe, or other Room in their reſpective Poſſeſſion; and alſo to break up the Ground in any ſuch Houſe or Place, or the Ground near adjoining, to ſearch for any ſuch private Back, Tun, or other Veſſel; or for any Pipe, or other Conveyance leading thereto; and if any private Pipe, or other Conveyance ſhall be found, to ſearch after and follow the ſame; and in caſe the ſame ſhall lead into any Ground, Houſe, or Place, in the Poſſeſſion of any other Perſon, on like Requeſt, and in the Preſence of a Conſtable, he may enter the ſame, and may break open the Ground, or any Part of the Houſe or Houſes, if Occaſion ſhall require, to follow ſuch private Pipe, making good the Ground or Houſe ſo broken up, or giving the Owner reaſonable Satisfaction: And if any Brewer, or other Perſon or Perſons, ſhall oppoſe any Officer in the due Execution of the Powers hereby given and granted, he ſhall forfeit 20*l.* AND it was directed that all the Fines, Penalties, and Forfeitures hereby impoſed, ſhould be recovered and levied as directed by any former Laws of the Exciſe, or in any of the Courts of Record at *Weſtminſter*. And that one Half of every ſuch Fine, Penalty, or Forfeitures, ſhould be to the King, and the other Half to the Informer. AND the Commiſſions of all Sub-Commiſſioners, Collectors, Supervifors, Gaugers, or others employed in the Exciſe, who are, have been, or ſhall be duly and legally conſtituted, ſhall be in Force, notwithſtanding the chief Commiſſioners who empowered them die, or are removed, until ſuch Time as they are revoked or annulled by the chief Commiſſioners. AND, *if it be demanded*, the Gaugers, at the Time of their taking the Gauges, are to leave with all common Brewers, or their Servants, true Notes in writing of every Gauge, ſetting forth the Inches and Tenths of the Backs, and the Wants of the Tuns, and the Quality of the Liquors reſpectively, on pain of forfeiting for every Neglect

* See the Gauger's farther Duty near the Bottom of this *Page* 248.

Neglect or Refusal, 40 *s.* with Cost of Suit, to be recovered in any of the Courts of Record at *Westminster*.

FOR the more effectual preventing Frauds and Abuses committed by Brewers and others chargeable with the Duties of Excise, in the Year 1697 (after revoking the Clause relating to Party Guiles on *Page* 247,) it was ordained, That after the 10th of *April* 1697, every common Brewer, or his Servants, should declare to the Gauger how much strong Beer or Ale he intends to make of such Guile, and also how much small, if he intends to make any small, before any Part is cleansed, or removed out of his Tuns, on pain of having the whole Guile charged strong, and of forfeiting for every Barrel of Beer or Ale contained in such Guile, the Sum of 20 *s.* And after the Length is declared, if any Increase should be made of the strong Beer or Ale so declared, or if the Gauger should find any Part of such Guile laid off over and above the Length so declared, such Brewers should forfeit for every Barrel so increased, laid off, or found over and above the Quantity declared, the Sum of 5 *l.* And every Brewer's Servant who is concerned in making such Increase, after the Length was declared, or in laying off any Beer or Ale before the Declaration, should forfeit 20 *s.* for every Barrel so increased or laid over, or in default of Payment, suffer *three Months* Imprisonment. And no Brewer shall avoid these Penalties, by proving that such Increase was made by strong Drink left in the Brew-house of a former Guile, unless he proves upon the Oath of one or more credible Witnesses that the strong Drink so added, was added in the Sight of the Gauger: And if any old return'd Drink or small Beer, shall be mixed with strong Beer or Ale remaining in the Brew-house of a former Guile, and such Mixture shall be added to a Guile of new Drink, the Officer shall charge the whole of such Drink so altered as new Drink then originally brewed, and the Brewer shall pay the Duty accordingly. GREAT Frauds having been carried on by Brewers having private Pipes and Stop-Cocks under Ground, and other private Conveyances betwixt their strong Beer Tuns and small Beer Tuns, for privately mixing the small Beer with strong, to the Prejudice of the Revenue, and likewise to the fair Trader, it was ordain'd, that every common Brewer having any Pipes or Stop-Cocks under Ground, or any other private Pipes or Conveyances for Beer, Ale, or Worts, out of one Brewing Vessel into another, or out of any Brewing Vessel into any other Place, should take up and demolish every such Pipe, Stop-Cock, and other private Conveyance, and stop up every Hole in every Tun, Batch or Float, before the 28th of *April*, 1697; and if any common Brewer should hereafter keep any such Pipe, Stop-Cock, or Conveyance for the Purposes aforesaid, he should forfeit 100 *l.* for every Offence; and the Gaugers and Officers of Excise are impowered, after the 28th of *April* 1697, in the Day-Time, and in the Presence of a Constable, or other lawful Officer for the Peace, on Request first made, and Cause declared, to break up the Ground in any common Brew-house, or the Ground near adjoining, or any Wall, Partition, or other Place, to search for any such private Pipe or other private Conveyance; and upon finding any such Pipe, or other private Conveyance, to follow the same, and to break up the Ground, House, Wall, or other Partitions or Place, through, or into which any such Pipe or other private Conveyance shall lead, and to break up, or cut any such Pipe, or other private Conveyance, and to turn any Cock or Cocks, to try and examine whether such Pipe, or other private Conveyance, may or can convey any Beer, Ale, or Worts out of one Tun or Brewing Vessel into another, or out of any

1697.

any ſuch Tun or Brewing Veſſel into any other Place; but in caſe upon ſuch Search no ſuch Pipe or other private Conveyance ſhall be found, the Officers ſhall make good the Ground, Wall, or other Place ſo broken up, or make a reaſonable Satisfaction to the Owner thereof; and if any common Brewer, or any other Perſon or Perſons whatſoever, ſhall oppoſe, obſtruct, or hinder any Gauger or Officer in the due Execution of the Powers given him, every ſuch Brewer, or other Perſon, ſhall fortfeit 50 *l.* for every ſuch Offence. BUT this Law does not reſtrain any common Brewer from keeping and making uſe of any Pipes, Stop-Cocks, or other Conveyances above Ground, and in open View, for letting his Worts out of one publick Veſſel into another. THE Penalties heretofore impoſed having been found inſufficient for preventing of Frauds committed by common Brewers keeping private Backs, and Tuns, it was ordained, That if any common Brewer, without firſt giving Notice at the next Office of Exciſe, ſhould ſet up, alter, or enlarge any Brewing Veſſel, or ſhould have any private or concealed Brewing Veſſel, he ſhould forfeit two Hundred Pounds for every Tun, Batch, Float, Cooler, and Copper ſo erected or ſet up, altered or enlarged, kept private or concealed, without ſuch Notice given as aforeſaid. AND if any Common Brewer after the 10th of *April* 1697, ſhall deliver any Waſh, Tilts, Ale, Beer, Vinegar-Beer, to any Diſtiller or Vinegar-maker, without firſt giving Notice to the Gauger in whoſe Diviſion ſuch Brewer doth or ſhall inhabit, what Quantity of Waſh, Tilts, Ale, Beer, Vinegar-Beer he intends to deliver, and when and to whom he intends to deliver the ſame, every ſuch common Brewer ſhall forfeit 20 *s.* for every Barrel of Waſh, Tilts, Ale, Beer, Vinegar-Beer delivered without ſuch Notice given as aforeſaid.

1699. TWO Years afterwards, *viz.* *Anno* 1699, it was declared, That notwithſtanding the Laws then in force, many common Brewers do uſe large Quantities of Melaſſes in the brewing of Ale and Beer, by which Means the Conſumption of Malt is very much prevented, and the Revenue defrauded of a great Part of the Duties of ſuch Drink, it was therefore ordained, That if any common Brewer, or Retailer of Beer or Ale ſhould after the tenth Day of *May*, One Thouſand Six Hundred Ninety-Nine, make uſe of any Melaſſes, coarſe Sugar, Honey, or Compoſition, or Extract of Sugar, in the brewing, or making, or working of any Beer or Ale; or if any common Brewer ſhould receive or take into his Cuſtody or Poſſeſſion any Quantity of Melaſſes, coarſe Sugar, Honey, or Compoſition or Extract of Sugar, exceeding the Weight of ten Pounds, every ſuch Brewer and Retailer ſhall forfeit 100 *l.* * for every ſuch Offence reſpectively; and every Servant of ſuch Brewer, and every other Perſon, who ſhall aſſiſt in uſing Melaſſes, coarſe Sugar, Honey, or Extract of Sugar, in the brewing or working of ſuch Ale and Beer, or in carrying or conveying the ſame into the Houſe, Brew-houſe, or other Place belonging to ſuch Brewer, ſhall forfeit 20 *l.* for every ſuch Offence; and in default of Payment, ſhall ſuffer three Months Impriſonment for the ſame.

1700. THE very next Year, *viz.* *Anno* 1700, it was declared, that all Inn-keepers, Ale-houſe Keepers, and Victuallers, ought to ſell their Drink by the Ale Quart, according to the Standard thereof, kept in his Majeſty's *Exchequer*; and that their ſelling Ale and Beer in uncertain Meaſure, leſs than the Standard, prevents the Conſumption of malted Corn, leſſens the Revenues of Exciſe, and is a great Wrong

* Abuſes of the like Sort are further provided againſt on *Page* 252. See alſo *Page* 247.

Wrong and Prejudice to Travellers and others, and alſo to ſuch of the Poor whoſe Neceſſities oblige them to buy Ale and Beer from them: For Remedy whereof it was ordained, That after the 24th Day of *June* 1700, all Inn-keepers, Ale-houſe Keepers, Sutlers, Victuallers, and other Retailers, and every Perſon keeping any publick Houſe, and retailing and ſelling Beer or Ale in any City, Town-Corporate, Borough, Market-Town, Village, Hamlet, Pariſh, Part or Place whatſoever, ſhall retail, utter, and ſell their Beer and Ale, in and from their Houſes, by a full Ale Quart or Ale Pint, according to the ſaid Standard, or in Proportion thereunto in Veſſels ſized, and made equal to the Standard, and ſhall not retail and utter any Beer or Ale to any Perſon or Perſons in any Veſſel, not being marked as aforeſaid, on pain to forfeit for every ſuch Offence a Sum not exceeding forty Shillings, nor leſs than ten Shillings, to be recovered as hereafter is directed. AND if any Inn-keeper, Ale-houſe Keeper, Victualler, Sutler, or other Retailer, as aforeſaid, ſhould, after the *Nine and twentieth Day* of *September* 1700, retail, or ſell any Beer or Ale in any Veſſel not ſtamped or marked, as aforeſaid, to any Traveller, or other Perſon or Perſons; or if in giving an Account or Reckoning in writing, or otherwiſe, any Inn-keeper, Ale houſe Keeper, or other Retailer, ſhall refuſe to give in the particular Number of Quarts or Pints of Beer or Ale, for which demand is made in ſuch Reckoning, it ſhall not be lawful, on default of the Payment of ſuch Reckoning, for any Inn-keeper, Ale-houſe Keeper, or other Retailers as aforeſaid, to detain any Goods, or other Thing belonging to the Perſon or Perſons from whom ſuch Reckoning ſhould be due, but he ſhould be left to recover the ſame by Action at Law, notwithſtanding any Cuſtom or Uſage to the contrary. AND to the Intent that the aforeſaid Veſſels may be from Time to Time ſized and equalled to the ſaid Standard, it was ordained, That the Sub-Commiſſioners or Collectors of his Majeſty's Revenue of Exciſe, within their reſpective Diviſions, ſhould forthwith provide a ſubſtantial Ale-Quart and Ale-Pint of Braſs, for the Mayor or chief Officer of each City, Corporation, Borough, or Market-Town in his Diviſion, in which there was not before a Braſs Standard and Ale-Quart and Pint, which ſaid Quart or Pint the Mayor or other chief Officer ſhall deliver to his Succeſſor for the Purpoſes aforeſaid; and from and after the 24th of *June* 1700, the Mayor, or other chief Officer of every City, Corporation, Borough, or Market-Town, ſhall from Time to Time cauſe all Ale-Quarts and Ale-Pints, made of Wood, Earth, Glaſs, Horn, Leather, Pewter, or other good and wholſome Metal, that ſhall be brought to him to be meaſured, compared, ſized, and equalled with ſuch Standard Ale-Quart and Ale-Pint in their Cuſtody, and ſhould then cauſe them to be plainly marked with W. R. * in Capitals, and a Crown, teſtifying that ſuch Quarts and Pints have been meaſured and adjuſted with the Standard in their Cuſtody, which Stamps or Marks, the Mayor or chief Officer is to provide; and for their ſtamping or marking each Meaſure, they ſhall neither demand nor receive above one Farthing; and if ſuch Mayor or other chief Officer ſhould neglect this his Duty, he ſhould forfeit the Sum of five Pounds, and ſhould pay to the Party aggrieved treble Damages, with Coſts of Suit, to be recovered in any of his Majeſty's Courts of Record. AND it was ordained, That all Penalties and Forfeitures impoſed hereby, ſhould be divided one Half to the Poor of that Pariſh where ſuch Forfeiture ſhould be incurred, and the other Half to the Informer, to be recovered by the Oath of one or more credible Witneſſes, made before

* This was in King *William*'s Reign.

before one or more Juſtice or Juſtices of the Peace of the County or Place where ſuch Offence is committed, and he or they are to cauſe the Penalty to be levied by Warrant under his or their Hands and Seals, upon the Goods and Chattels of the Offender, rendering to the Party the Overplus, after the reaſonable Charges ſhould be deducted. But if any Retailer ſhall ſell his Drink to be ſpent out of his Houſe, provided he meaſures it by the Standard, he is not ſubject to any Penalty as aforeſaid, although ſuch Drink is carried out in Veſſels not marked. AND if any Juſtice of the Peace, or any Perſon or Perſons employed by him in the Execution of the Premiſſes, have any Action brought againſt them, it muſt be laid in the County where the Fact was committed, and the Defendant may plead the General Iſſue, and give the Matter in Evidence; and if the Defendant obtains a Verdict, or the Plaintiff is nonſuited, or diſcontinue his Action, the Defendant ſhall have treble Coſts; and the Juſtices of the Peace, at their Quarter Seſſions, are to give the Matters herein contained in Charge to the Grand Juries of their Counties reſpectively. But nothing herein ordained, ſhall extend to deprive *the two Univerſities* of any Privilege and Uſage, of marking and ſizing the Meaſures for Ale and Beer within their reſpective Juriſdictions.

1701. THE evil Practices in brewing Beer and Ale with Sugar, Honey, foreign Grains, *Guinea* Pepper, or with a late invented Liquor, or Syrup, made from Malt and Water, boiled up to the Conſiſtency of Melaſſes, and very much reſembling the ſame, and commonly called *Eſſentia Bine*, or with any other unwholſome Materials, being got to a very great Height; and to the End that no Mixture of Sugar, Honey, foreign Grains, *Guinea* Pepper, or of the ſaid Liquor or Syrup, or other unwholſome Materials may be uſed in the brewing or making of Beer and Ale; in the Year 1701, it was ordained, That no common Brewer, Inn-keeper, Victualler, or other Retailer of Beer and Ale, ſhould make uſe of any Sugar, Honey, foreign Grains, *Guinea* Pepper, or of the ſaid Liquor or Syrup called *Eſſentia Bine*, *Coculus Indiæ*, or any other unwholſome Materials or Ingredients in the making or brewing of any Beer or Ale, under the Penalty of 20*l.* for every Offence: Nor ſhall any common Brewer, Inn-keeper, Victualler, or other Retailer Mix * any Sugar, Honey, foreign Grains, *Guinea* Pepper, or any of the ſaid Liquor called *Eſſentia Bine*, *Coculus Indiæ*, or any other unwholſome Materials or Ingredients, *with any Beer or Ale*, under the like Penalty of forfeiting for every ſuch Offence, the Sum of 20*l.*

IT having been found by Experience, that Hops uſed in the making of Malt Drinks, are more wholſome to human Bodies, and of greater Advantage to the Drink itſelf, than any other bitter Ingredient that can be uſed inſtead thereof; in the Year 1710, it was therefore ordained, That

1710. no common Brewer, Inn-keeper, or Victualler, ſhould uſe any Broom, Wormwood, or any other bitter Ingredient (to ſerve inſtead of Hops) in brewing or making any Beer or Ale to be brew'd or made for Sale, in any Part of *Great Britain*, on pain of forfeiting 20*l.* for every ſuch Offence; one Half whereof ſhall be to the Crown, and the other Half

* Theſe Materials which the Reader finds printed with a different Letter, their Uſe was not till now *prohibited*; and formerly the Offence was the *uſing* of any of the other Materials in the *brewing* or *working* of any Ale or Beer; but now the very *mixing* of any of the Ingredients abovementioned with any Ale and Beer, is ſubject to a Penalty of 20*l.* for every Offence.

Half to him or them that ſhall diſcover, inform, or ſue for the ſame. But the infuſing of Broom or Wormwood into Beer or Ale by the Retailer *after the ſame is brewed and tunned*, to make the ſame Broom or Wormwood-Ale, or Broom or Wormwood-Beer, is not penal.

ABOUT nine Years after, *viz.* 1745, the Legiſlature, obſerving that by the Laws as they then ſtood concerning the Duties of Exciſe, and other Duties under the Management of the Commiſſioners of Exciſe, in that Part of *Great Britain* called *England*, all Forfeitures and Offences, made and committed within the immediate Limits of the chief Office in *London*, were to be heard and determined by the chief Commiſſioners and Governors of Exciſe; and all ſuch Forfeitures and Offences made and committed within all or any other the Counties, Cities, Towns, or Places in *England*, were to be heard and determined by any two or more Juſtices of the Peace reſiding near to the Place where ſuch Forfeitures ſhould be made or Offence committed. And whereas it had been found that many Perſons chargeable with Duties of Exciſe, or other Duties under the Management of the ſaid Commiſſioners, or incurring Penalties by Offences againſt the ſaid Laws, did frequently avoid Proſecutions, by removing out of the Juriſdiction wherein ſuch Duties were charged, or Offences committed, to the great Prejudice of the Revenue, and Diſcouragement of the fair Traders: For the preventing of which for the future, it was ordained, that from and after the 24th Day of *June* 1745, it ſhould and might be lawful for the ſaid Commiſſioners and Juſtices reſpectively, within whoſe Juriſdiction any Perſon charged with any of the ſaid Duties, or who ſhould have committed any Offence againſt the ſaid Laws, or any of them, ſhould be found, to ſummon, hear, adjudge, and determine, and iſſue any Proceſs or Warrant in the ſame Manner as ſuch Commiſſioners or Juſtices might now do in caſe of ſuch Offences as are committed within their reſpective Juriſdictions: And in caſe the ſaid Commiſſioners or Juſtices ſhould, upon any Judgment given by them reſpectively, iſſue a Warrant or Warrants of Diſtreſs, and the Perſon or Perſons authoriſed to execute ſuch Warrant, or any of them, ſhould make a Return thereto, that no ſufficient Diſtreſs can be found, then it ſhould and might be lawful for the ſaid Commiſſioners and Juſtices reſpectively, within whoſe Juriſdiction the Party ſhould at any Time be found, againſt whom ſuch Warrant ſhould have been iſſued, upon producing to them ſuch Warrant, and Return thereof, to commit ſuch Offender to the next County Goal till he has made Satisfaction. AND that if any Perſon ſhould be proſecuted for any thing done by virtue or in purſuance of this or any other Ordinance relating to the Duties of Exciſe, or other Duties under the Management of the Commiſſioners of Exciſe, ſuch Perſon might plead the general Iſſue; and if afterwards a Verdict ſhould paſs for the Defendant, or the Plaintiff diſcontinue his Action, or be nonſuited, or Judgment ſhould be given againſt him, upon Demurrer, or otherwiſe, that then ſuch Defendant ſhould have treble Coſts awarded to him againſt any ſuch Plaintiff. 1745.

ABOUT five Years after, *viz.* 1750, *the Office-Hours* having been found inconvenient, and to be attended with extraordinary Expence to the Subject, it was ordained, that *the Office-Hours* appointed by the Ordinance of 1663 ſhould be repealed, and that after the *tenth Day* of *May* 1750, the *Exciſe-Office* ſhould be kept open from 8 o'Clock in the Morning, till 2 o'Clock in the Afternoon, and no longer. 1750.

The

The EXPLANATION *and* USE *of the following* TABLES.

☞ *The following Tables are not only very uſeful to* Officers *in making up their Accompts againſt the* Sittings; *but alſo to thoſe* Traders, *who are ſubject to their reſpective Duties.*

TABLES I. *and* II. For VICTUALLERS.

BOTH theſe Tables *begin* with a *Quarter* of a Barrel, (*viz.* a Firkin,) and *end* with 112 *Barrels*.

N. B. The *large* Figures in the Columns titled *Bar.* ſignify ſo many *Barrels*; and the *ſmall* Figures between them, *Quarters* of *Barrels*.

Example. I demand how much *Exciſe* a *Victualler* has to pay for 46 ¼ Barrels of *Ale*, and 29 ¾ Barrels of *Small Beer*?

	l.	*s.*	*d.*
Look in *Table* I. for 46 ¼ *Barrels*, and againſt it you have ——	11	11	3
Look in *Table* II. for 29 ¾, and againſt it you have ——	1	19	8
And thus you find the *Exciſe* or *Duty* amounts to ——	13	10	11

N. B. If your *Number* of Barrels be more than 112, you muſt take it out of the Table *at twice*.

TABLES III. *and* IV. For *Common Brewers* in the COUNTRY.

Both theſe Tables begins with ¼ of a *Barrel*, (or Firkin) and *end* with 460 *Barrels*.

Example. What *Exciſe* has a common Brewer in the *Country* to pay for 50 ½ Barrels of *Small Beer*?

	l.	*s.*	*d.*	*q.*	*pts.*
1*ſt*, Look for 50 in the *Column* of *Barrels*, and againſt it you have ——	2	19	5	0	4
2*dly*, Look at the *Beginning* of the Table, in the *ſame Column*, for ½ a Barrel, and againſt it you have ——	0	0	7	0	12
And thus you find that the *Duty* of 50 ½ Barrels of *Small Beer* amounts to ——	3	0	0	0	16

N. B. If your *Number* of Barrels *exceeds* 460, you muſt take it out of the Table *at twice*.

TABLES V. VI. *and* VII. For *Common Brewers* in LONDON.

Example. What *Exciſe* is to be paid for 430 Barrels of *Strong Beer*, by a common Brewer in *London*?

430, The *Number* given, is not to be found in the Table; therefore take the *next leſs* Number,	*l.*	*s.*	*d.*	*pts.*
which is—414—which comes to	90	0	0	00
Then take— 16—which comes to	3	9	6	33
Which added, make—430—and amounts to	93	9	6	33

N. B. The *Uſes* of the *Tables* VI. and VII. being the *very ſame*, they need no Example.

Caſh

Cash Tables *for* Victuallers *for the* Excise *of* STRONG *Beer* and *Ale*, *at* 5 s. *per* Barrel, *calculated to a* Quarter *of a* Barrel, by *C. Leadbetter*. Explain'd on *Page* 254.

Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.
¼	0	1	3	11	2	15	0	¾	5	8	9	½	8	2	6	¼	10	16	3
½	0	2	6	¼	2	16	3	22	5	10	0	¾	8	3	9	½	10	17	6
¾	0	3	9	½	2	17	6	¼	5	11	3	33	8	5	0	¾	10	18	9
1	0	5	0	¾	2	18	9	½	5	12	6	¼	8	6	3	44	11	00	0
¼	0	6	3	12	3	00	0	¾	5	13	9	½	8	7	6	¼	11	1	3
½	0	7	6	¼	3	1	3	23	5	15	0	¾	8	8	9	½	11	2	6
¾	0	8	9	½	3	2	6	¼	5	16	3	34	8	10	0	¾	11	3	9
2	0	10	0	¾	3	3	9	½	5	17	6	¼	8	11	3	45	11	5	0
¼	0	11	3	13	3	5	0	¾	5	18	9	½	8	12	6	¼	11	6	3
½	0	12	6	¼	3	6	3	24	6	00	0	¾	8	13	9	½	11	7	6
¾	0	13	9	½	3	7	6	¼	6	1	3	35	8	15	0	¾	11	8	9
3	0	15	0	¾	3	8	9	½	6	2	6	¼	8	16	3	46	11	10	0
¼	0	16	3	14	3	10	0	¾	6	3	9	½	8	17	6	¼	11	11	3
½	0	17	6	¼	3	11	3	25	6	5	0	¾	8	18	9	½	11	12	6
¾	0	18	9	½	3	12	6	¼	6	6	3	36	9	00	0	¾	11	13	9
4	1	0	0	¾	3	13	9	½	6	7	6	¼	9	1	3	47	11	15	0
¼	1	1	3	15	3	15	0	¾	6	8	9	½	9	2	6	¼	11	16	3
½	1	2	6	¼	3	16	3	26	6	10	0	¾	9	3	9	½	11	17	6
¾	1	3	9	½	3	17	6	¼	6	11	3	37	9	5	0	¾	11	18	9
5	1	5	0	¾	3	18	9	½	6	12	6	¼	9	6	3	48	12	00	0
¼	1	6	3	16	4	00	0	¾	6	13	9	½	9	7	6	¼	12	1	3
½	1	7	6	¼	4	1	3	27	6	15	0	¾	9	8	9	½	12	2	6
¾	1	8	9	½	4	2	6	¼	6	16	3	38	9	10	0	¾	12	3	9
6	1	10	0	¾	4	3	9	½	6	17	6	¼	9	11	3	49	12	5	0
¼	1	11	3	17	4	5	0	¾	6	18	9	½	9	12	6	¼	12	6	3
½	1	12	6	¼	4	6	3	28	7	00	0	¾	9	13	9	½	12	7	6
¾	1	13	9	½	4	7	6	¼	7	1	3	39	9	15	0	¾	12	8	9
7	1	15	0	¾	4	8	9	½	7	2	6	¼	9	16	3	50	12	10	0
¼	1	16	3	18	4	10	0	¾	7	3	9	½	9	17	6	¼	12	11	3
½	1	17	6	¼	4	11	3	29	7	5	0	¾	9	18	9	½	12	12	6
¾	1	18	9	½	4	12	6	¼	7	6	3	40	10	00	0	¾	12	13	9
8	2	00	0	¾	4	13	9	½	7	7	6	¼	10	1	3	51	12	15	0
¼	2	1	3	19	4	15	0	¾	7	8	9	½	10	2	6	¼	12	16	3
½	2	2	6	¼	4	16	3	30	7	10	0	¾	10	3	9	½	12	17	6
¾	2	3	9	½	4	17	6	¼	7	11	3	41	10	5	0	¾	12	18	9
9	2	5	0	¾	4	18	9	½	7	12	6	¼	10	6	3	52	13	00	0
¼	2	6	3	20	5	00	0	¾	7	13	9	½	10	7	6	¼	13	1	3
½	2	7	6	¼	5	1	3	31	7	15	0	¾	10	8	9	½	13	2	6
¾	2	8	9	½	5	2	6	¼	7	16	3	42	10	10	0	¾	13	3	9
10	2	10	0	¾	5	3	9	½	7	17	6	¼	10	11	3	53	13	5	0
¼	2	11	3	21	5	5	0	¾	7	18	9	½	10	12	6	¼	13	6	3
½	2	12	6	¼	5	6	3	32	8	00	0	¾	10	13	9	½	13	7	6
¾	2	13	9	½	5	7	6	¼	8	1	3	43	10	15	0	¾	13	8	9

Bar.	l.	s.	d.
54	13	10	0
¼	13	11	3
½	13	12	6
¾	13	13	9
55	13	15	0
¼	13	16	3
½	13	17	6
¾	13	18	9
56	14	00	0
¼	14	1	3
½	14	2	6
¾	14	3	9
57	14	5	0
¼	14	6	3
½	14	7	6
¾	14	8	9
58	14	10	0
¼	14	11	3
½	14	12	6
¾	14	13	9
59	14	15	0
¼	14	16	3
½	14	17	6
¾	14	18	9
60	15	00	0
¼	15	1	3
½	15	2	6
¾	15	3	9
61	15	5	0
¼	15	6	3
½	15	7	6
¾	15	8	9
62	15	10	0
¼	15	11	3
½	15	12	6
¾	15	13	9
63	15	15	0
¼	15	16	3
½	15	17	6
¾	15	18	9
64	16	00	0
¼	16	1	3
½	16	2	6
¾	16	3	9
65	16	5	0
¼	16	6	3
½	16	7	6
¾	16	8	9
66	16	10	0
¼	16	11	3
½	16	12	6
¾	16	13	9
67	16	15	0
¼	16	16	3
½	16	17	6
¾	16	18	9
68	17	00	0
¼	17	1	3
½	17	2	6
¾	17	3	9
69	17	5	0
¼	17	6	3
½	17	7	6
¾	17	8	9
70	17	10	0
¼	17	11	3
½	17	12	6
¾	17	13	9
71	17	15	0
¼	17	16	3
½	17	17	6
¾	17	18	9
72	18	00	0
¼	18	1	3
½	18	2	6
¾	18	3	9
73	18	5	0
¼	18	6	3
½	18	7	6
¾	18	8	9
74	18	10	0
¼	18	11	3
½	18	12	6
¾	18	13	9
75	18	15	0
¼	18	16	3
½	18	17	6
¾	18	18	9
76	19	00	0
¼	19	1	3
½	19	2	6
¾	19	3	9
77	19	5	0
¼	19	6	3
½	19	7	6
¾	19	8	9
78	19	10	0
¼	19	11	3
½	19	12	6
¾	19	13	9
79	19	15	0
¼	19	16	3
½	19	17	6
¾	19	18	9
80	20	00	0
¼	20	1	3
½	20	2	6
¾	20	3	9
81	20	5	0
¼	20	6	3
½	20	7	6
¾	20	8	9
82	20	10	0
¼	20	11	3
½	20	12	6
¾	20	13	9
83	20	15	0
¼	20	16	3
½	20	17	6
¾	20	18	9
84	21	00	0
¼	21	1	3
½	21	2	6
¾	21	3	9
85	21	5	0
¼	21	6	3
½	21	7	6
¾	21	8	9
86	21	10	0
¼	21	11	3
½	21	12	6
¾	21	13	9
87	21	15	0
¼	21	16	3
½	21	17	6
¾	21	18	9
88	22	00	0
¼	22	1	3
½	22	2	6
¾	22	3	9
89	22	5	0
¼	22	6	3
½	22	7	6
¾	22	8	9
90	22	10	0
¼	22	11	3
½	22	12	6
¾	22	13	9
91	22	15	0
¼	22	16	3
½	22	17	6
¾	22	18	9
92	23	00	0
¼	23	1	3
½	23	2	6
¾	23	3	9
93	23	5	0
¼	23	6	3
½	23	7	6
¾	23	8	9
94	23	10	0
¼	23	11	3
½	23	12	6
¾	23	13	9
95	23	15	0
¼	23	16	3
½	23	17	6
¾	23	18	9
96	24	00	0
¼	24	1	3
½	24	2	6
¾	24	3	9
97	24	5	0
¼	24	6	3
½	24	7	6
¾	24	8	9
98	24	10	0
¼	24	11	3
½	24	12	6
¾	24	13	9
99	24	15	0
¼	24	16	3
½	24	17	6
¾	24	18	9
100	25	00	0
¼	25	1	3
½	25	2	6
¾	25	3	9
101	25	5	0
¼	25	6	3
½	25	7	6
¾	25	8	9
102	25	10	0
¼	25	11	3
½	25	12	6
¾	25	13	9
103	25	15	0
¼	25	16	3
½	25	17	6
¾	25	18	9
104	26	00	0
¼	26	1	3
½	26	2	6
¾	26	3	9
105	26	5	0
¼	26	6	3
½	26	7	6
¾	26	8	9
106	26	10	0
¼	26	11	3
½	26	12	6
¾	26	13	9
107	26	15	0
¼	26	16	3
½	26	17	6
¾	26	18	9
108	27	00	0
¼	27	1	3
½	27	2	6
¾	27	3	9
109	27	5	0
¼	27	6	3
½	27	7	6
¾	27	8	9
110	27	10	0
¼	27	11	3
½	27	12	6
¾	27	13	9
111	27	15	0
¼	27	16	3
½	27	17	6
¾	27	18	9
112	28	00	0

TABLE II.

See it explained on *Page* 254.

Cash Tables *for* Victuallers *for* the Excise *of* SMALL *Beer*, at 1 *s.* 4 *d. per* Barrel, *calculated to a* Quarter *of a* Barrel, by *C. Leadbetter.*

Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.
1	0	0	4	3	0	14	4	1	1	8	4	3	2	2	4	1	2	10	4
2	0	0	8	11	0	14	8	2	1	8	8	32	2	2	8	2	2	16	8
3	0	1	0	1	0	15	0	3	1	9	0	1	2	3	0	3	2	17	0
1	0	1	4	2	0	15	4	22	1	9	4	2	2	3	4	43	2	17	4
1	0	1	8	3	0	15	8	1	1	9	8	3	2	3	8	1	2	17	8
2	0	2	0	12	0	16	0	2	1	10	0	33	2	4	0	2	2	18	0
3	0	2	4	1	0	16	4	3	1	10	4	1	2	4	4	3	2	18	4
2	0	2	8	2	0	16	8	23	1	10	8	2	2	4	8	44	2	18	8
1	0	3	0	3	0	17	0	1	1	11	0	3	2	5	0	1	2	19	0
2	0	3	4	13	0	17	4	2	1	11	4	34	2	5	4	2	2	19	4
3	0	3	8	1	0	17	8	3	1	11	8	1	2	5	8	3	2	19	8
3	0	4	0	2	0	18	0	24	1	12	0	2	2	6	0	45	3	0	0
1	0	4	4	3	0	18	4	1	1	12	4	3	2	6	4	1	3	0	4
2	0	4	8	14	0	18	8	2	1	12	8	35	2	6	8	2	3	0	8
3	0	5	0	1	0	19	0	3	1	13	0	1	2	7	0	3	3	1	0
4	0	5	4	2	0	19	4	25	1	13	4	2	2	7	4	46	3	1	4
1	0	5	8	3	0	19	8	1	1	13	8	3	2	7	8	1	3	1	8
2	0	6	0	15	1	00	0	2	1	14	0	36	2	8	0	2	3	2	0
3	0	6	4	1	1	0	4	3	1	14	4	1	2	8	4	3	3	2	4
5	0	6	8	2	1	0	8	26	1	14	8	2	2	8	8	47	3	2	8
1	0	7	0	3	1	1	0	1	1	15	0	3	2	9	0	1	3	3	0
2	0	7	4	16	1	1	4	2	1	15	4	37	2	9	4	2	3	3	4
3	0	7	8	1	1	1	8	3	1	15	8	1	2	9	8	3	3	3	8
6	0	8	0	2	1	2	0	27	1	16	0	2	2	10	0	48	3	4	0
1	0	8	4	3	1	2	4	1	1	16	4	3	2	10	4	1	3	4	4
2	0	8	8	17	1	2	8	2	1	16	8	38	2	10	8	2	3	4	8
3	0	9	0	1	1	3	0	3	1	17	0	1	2	11	0	3	3	5	0
7	0	9	4	2	1	3	4	28	1	17	4	2	2	11	4	49	3	5	4
1	0	9	8	3	1	3	8	1	1	17	8	3	2	11	8	1	3	5	8
2	0	10	0	18	1	4	0	2	1	18	0	39	2	12	0	2	3	6	0
3	0	10	4	1	1	4	4	3	1	18	4	1	2	12	4	3	3	6	4
8	0	10	8	2	1	4	8	29	1	18	8	2	2	12	8	50	3	6	8
1	0	11	0	3	1	5	0	1	1	19	0	3	2	13	0	1	3	7	0
2	0	11	4	19	1	5	4	2	1	19	4	40	2	13	4	2	3	7	4
3	0	11	8	1	1	5	8	3	1	19	8	1	2	13	8	3	3	7	8
9	0	12	0	2	1	6	0	30	2	0	0	2	2	14	0	51	3	8	0
1	0	12	4	3	1	6	4	1	2	0	4	3	2	14	4	1	3	8	4
2	0	12	8	20	1	6	8	2	2	0	8	41	2	14	8	2	3	8	8
3	0	13	0	1	1	7	0	3	2	1	0	1	2	15	0	3	3	9	0
10	0	13	4	2	1	7	4	31	2	1	4	2	2	15	4	52	3	9	4
1	0	13	8	3	1	7	8	1	2	1	8	3	2	15	8	1	3	9	8
2	0	14	0	21	1	8	0	2	2	2	0	42	2	16	0	2	3	10	0

TABLE II. *continued.*

Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.
3	3	10	4	3	4	6	4	3	5	2	4	3	5	18	4	3	6	14	4
53	3	10	8	65	4	6	8	77	5	2	8	89	5	18	8	101	6	14	8
1	3	11	0	1	4	7	0	1	5	3	0	1	5	19	0	1	6	15	0
2	3	11	4	2	4	7	4	2	5	3	4	2	5	19	4	2	6	15	4
3	3	11	8	3	4	7	8	3	5	3	8	3	5	19	8	3	6	15	8
54	3	12	0	66	4	8	0	78	5	4	0	90	6	0	0	102	6	16	0
1	3	12	4	1	4	8	4	1	5	4	4	1	6	0	4	1	6	16	4
2	3	12	8	2	4	8	8	2	5	4	8	2	6	0	8	2	6	16	8
3	3	13	0	3	4	9	0	3	5	5	0	3	6	1	0	3	6	17	0
55	3	13	4	67	4	9	4	79	5	5	4	91	6	1	4	103	6	17	4
1	3	13	8	1	4	9	8	1	5	5	8	1	6	1	8	1	6	17	8
2	3	14	0	2	4	10	0	2	5	6	0	2	6	2	0	2	6	18	0
3	3	14	4	3	4	10	4	3	5	6	4	3	6	2	4	3	6	18	4
56	3	14	8	68	4	10	8	80	5	6	8	92	6	2	8	104	6	18	8
1	3	15	0	1	4	11	0	1	5	7	0	1	6	3	0	1	6	19	0
2	3	15	4	2	4	11	4	2	5	7	4	2	6	3	4	2	6	19	4
3	3	15	8	3	4	11	8	3	5	7	8	3	6	3	8	3	6	19	8
57	3	16	0	69	4	12	0	81	5	8	0	93	6	4	0	105	7	0	0
1	3	16	4	1	4	12	4	1	5	8	4	1	6	4	4	1	7	0	4
2	3	16	8	2	4	12	8	2	5	8	8	2	6	4	8	2	7	0	8
3	3	17	0	3	4	13	0	3	5	9	0	3	6	5	0	3	7	1	0
58	3	17	4	70	4	13	4	82	5	9	4	94	6	5	4	106	7	1	4
1	3	17	8	1	4	13	8	1	5	9	8	1	6	5	8	1	7	1	8
2	3	18	0	2	4	14	0	2	5	10	0	2	6	6	0	2	7	2	0
3	3	18	4	3	4	14	4	3	5	10	4	3	6	6	4	3	7	2	4
59	3	18	8	71	4	14	8	83	5	10	8	95	6	6	8	107	7	2	8
1	3	19	0	1	4	15	0	1	5	11	0	1	6	7	0	1	7	3	0
2	3	19	4	2	4	15	4	2	5	11	4	2	6	7	4	2	7	3	4
3	3	19	8	3	4	15	8	3	5	11	8	3	6	7	8	3	7	3	8
60	4	0	0	72	4	16	0	84	5	12	0	96	6	8	0	108	7	4	0
1	4	0	4	1	4	16	4	1	5	12	4	1	6	8	4	1	7	4	4
2	4	0	8	2	4	16	8	2	5	12	8	2	6	8	8	2	7	4	8
3	4	1	0	3	4	17	0	3	5	13	0	3	6	9	0	3	7	5	0
61	4	1	4	73	4	17	4	85	5	13	4	97	6	9	4	109	7	5	4
1	4	1	8	1	4	17	8	1	5	13	8	1	6	9	8	1	7	5	8
2	4	2	0	2	4	18	0	2	5	14	0	2	6	10	0	2	7	6	0
3	4	2	4	3	4	18	4	3	5	14	4	3	6	10	4	3	7	6	4
62	4	2	8	74	4	18	8	86	5	14	8	98	6	10	8	110	7	6	8
1	4	3	0	1	4	19	0	1	5	15	0	1	6	11	0	1	7	7	0
2	4	3	4	2	4	19	4	2	5	15	4	2	6	11	4	2	7	7	4
3	4	3	8	3	4	19	8	3	5	15	8	3	6	11	8	3	7	7	8
63	4	4	0	75	5	0	0	87	5	16	0	99	6	12	0	111	7	8	0
1	4	4	4	1	5	0	4	1	5	16	4	1	6	12	4	1	7	8	4
2	4	4	8	2	5	0	8	2	5	16	8	2	6	12	8	2	7	8	8
3	4	5	0	3	5	1	0	3	5	17	0	3	6	13	0	3	7	9	0
64	4	5	4	76	5	1	4	88	5	17	4	100	6	13	4	112	7	9	4
1	4	5	8	1	5	1	8	1	5	17	8	1	6	13	8				
2	4	6	0	2	5	2	0	2	5	18	0	2	6	14	0				

Common Brewers in the Country, at 5 s. per Bar.

Table III.

See it explained on *Page* 254.

Caſh Tables for the *Exciſe* on Strong *Beer* and *Ale*, for the Uſe of Common *Brewers* in the Country, at 5 *s. per Barrel*, with their *Allowance* * of TWO *Barrels* and an HALF upon every 23, being deducted out of the ſaid 5 *s.* by *C. Leadbetter*.

Bar.	*l.*	*s.*	*d.*	*q.*	*pts.*	*Bar.*	*l.*	*s.*	*d.*	*q.*	*pts.*
¼	0	1	1	1	11	120	26	14	9	1	13
½	0	2	2	2	22	130	28	19	4	0	16
¾	0	3	4	0	10	140	31	3	10	3	19
1	0	4	5	1	21	150	33	8	5	2	22
2	0	8	10	3	19	160	35	13	0	2	2
3	0	13	4	1	17	170	37	17	7	1	5
4	0	17	9	3	15	180	40	2	2	0	8
5	1	2	3	1	13	190	42	6	8	3	11
6	1	6	8	3	11	200	44	11	3	2	14
7	1	11	2	1	9	210	46	15	10	1	17
8	1	15	7	3	7	220	49	0	5	0	20
9	2	0	1	1	5	230	51	5	0	0	0
10	2	4	6	3	3	240	53	9	6	3	3
11	2	9	0	1	1	250	55	14	1	2	6
12	2	13	5	2	22	260	57	18	8	1	9
13	2	17	11	0	20	270	60	3	3	0	12
14	3	2	4	2	18	280	62	7	9	3	15
15	3	6	10	0	16	290	64	12	4	2	18
16	3	11	3	2	14	300	66	16	11	1	21
17	3	15	9	0	12	310	69	1	6	1	1
18	4	0	2	2	10	320	71	6	1	0	4
19	4	4	8	0	8	330	73	10	7	3	7
20	4	0	1	2	6	340	75	15	2	2	10
21	4	13	7	0	4	350	77	19	9	1	13
22	4	18	0	2	2	360	80	4	4	0	16
23	5	2	6	0	0	370	82	8	10	3	19
30	6	13	8	1	9	380	84	13	5	2	22
40	8	18	3	0	12	390	86	18	0	2	2
50	11	2	9	3	15	400	89	2	7	1	5
60	13	7	4	2	18	410	91	7	2	0	8
70	15	11	11	1	21	420	93	11	8	3	11
80	17	16	6	1	1	430	95	16	3	2	14
90	20	1	1	0	4	440	98	0	10	1	17
100	22	5	7	3	7	450	100	5	5	0	20
110	24	10	2	2	10	460	102	10	0	0	0

* The Acts of Parliament relating to the reſpective *Duties* and *Allowances* on Strong *Beer* and *Ale*, and Small *Beer*, are 12 *Car.* II. 1, 4, 5 *Will.* & *M.* and 4 and 8 *Anne*.

Com. Brewers in the Country, at 1 s. 4 d. per Bar.

Table IV.

See it explained on *Page* 254.

Cash Tables for the *Excise* on Small *Beer*, for the Use of Common *Brewers* in the Country, at 1 *s.* 4 *d. per Barrel*, with their Allowance of TWO *Barrels* and an HALF upon every 23, being deducted out of the said 1 *s.* 4 *d.* by *C. Leadbetter*.

Bar.	*l.*	*s.*	*d.*	*q.*	*pts.*	*Bar.*	*l*	*s.*	*d.*	*q.*	*pts.*
¼	0	0	3	2	6	110	6	10	8	2	18
½	0	0	7	0	12	120	7	2	7	1	5
¾	0	0	10	2	18	130	7	14	5	3	15
1	0	1	2	1	1	140	8	6	4	2	2
2	0	2	4	2	2	150	8	18	3	0	12
3	0	3	6	3	3	160	9	10	1	2	22
4	0	4	9	0	4	170	10	2	0	1	9
5	0	5	11	1	5	180	10	13	10	3	19
6	0	7	1	2	6	190	11	5	9	2	6
7	0	8	3	3	7	200	11	17	8	0	16
8	0	9	6	0	8	210	12	9	6	3	3
9	0	10	8	1	9	220	13	1	5	1	13
10	0	11	10	2	10	230	13	13	4	0	0
11	0	13	0	3	11	240	14	5	2	2	10
12	0	14	3	0	12	250	14	17	1	0	20
13	0	15	5	1	13	260	15	8	11	3	7
14	0	16	7	2	14	270	16	0	10	1	17
15	0	17	9	3	15	280	16	12	9	0	4
16	0	19	0	0	16	290	17	4	7	2	14
17	1	0	2	1	17	300	17	16	6	1	1
18	1	1	4	2	18	310	18	8	4	3	11
19	1	2	6	3	19	320	19	0	3	1	21
20	1	3	9	0	20	330	19	12	2	0	8
21	1	4	11	1	21	340	20	4	0	2	18
22	1	6	1	2	22	350	20	15	11	1	5
23	1	7	4	0	0	360	21	7	9	3	15
30	1	15	7	3	7	370	21	19	8	2	2
40	2	7	6	1	17	380	22	11	7	0	12
50	2	19	5	0	4	390	23	3	5	2	22
60	3	11	3	2	14	400	23	15	4	1	9
70	4	3	2	1	1	410	24	7	2	3	19
80	4	15	0	3	11	420	24	19	1	2	6
90	5	6	11	1	21	430	25	11	0	0	16
100	5	18	10	0	8	440	27	6	8	0	0

Common Brewers in London, at 5 s. per Barrel.

BEER.

Table V.

See it explained on *Page* 254.

Cash Tables for the *Excise* on Strong *Beer*, for the Use of Common *Brewers* in London, or the *Bills of Mortality*, at 5 *s. per Barrel*, with their *Allowance* of 3 Barrels upon every 23, being deducted out of the said 5 *s.* by *C. Leadbetter*.

Bar.	*l.*	*s.*	*d.*	*q.*	*z.*
¼	0	1	1	0	4
½	0	2	2	0	8
¾	0	3	3	0	12
1	0	4	4	0	16
2	0	8	8	1	9
3	0	13	0	2	2
4	0	17	4	2	18
5	1	1	8	3	11
6	1	6	1	0	4
7	1	10	5	0	20
8	1	14	9	1	13
9	1	19	9	2	6
10	2	3	5	2	22
11	2	7	9	3	15
12	2	12	2	0	8
13	2	16	6	1	1
14	3	0	10	1	17
15	3	5	2	2	10
16	3	9	6	3	3
17	3	13	10	3	19
18	3	18	3	0	12
19	4	2	7	1	5
20	4	6	11	1	21
21	4	11	3	2	14
22	4	15	7	3	7
23	5	0	0	0	0

Bar.	*l.*
46	10
69	15
92	20
115	25
138	30
161	35
184	40
207	45
230	50
253	55
276	60
299	65
322	70
345	75
368	80
391	85
414	90
437	95
460	100
483	105
506	110
529	115
552	120
575	125
598	130
621	135
644	140
667	145
690	150
713	155
736	160
759	165
782	170
805	175
828	180
851	185
874	190
897	195
920	200
943	205

Bar.	*l.*
966	210
989	215
1012	220
1035	225
1058	230
1081	235
1104	240
1127	245
1150	250
1173	255
1196	260
1219	265
1242	270
1265	275
1288	280
1311	285
1334	290
1357	295
1380	300
1403	305
1426	310
1449	315
1472	320
1495	325
1518	330
1541	335
1564	340
1587	345
1610	350
1633	355
1656	360
1679	365
1702	370
1725	375
1748	380
1771	385
1794	390
1817	395
1840	400
1863	405

Bar.	*l.*
1886	410
1909	415
1932	420
1955	425
1978	430
2001	435
2024	440
2047	445
2070	450
2093	455
2116	460
2139	465
2162	470
2185	475
2208	480
2231	485
2254	490
2277	495
2300	500
2323	505
2346	510
2369	515
2392	520
2415	525
2438	530
2461	535
2484	540
2507	545
2530	550
5060	1100
7590	1650
10120	2200
12650	2750
15180	3300
17710	3850
20240	4400
22770	4950
25300	5500
27830	6050

Common Brewers in London, at 5 s. per Barrel.

ALE.

Table VI.

See it explained on *Page* 254.

Caſh Tables for the *Exciſe* on *Ale*, for the Uſe of Common *Brewers* in London, at 5 *s. per Barrel*, with their *Allowance* of 2 Barrels upon 22, being deducted out of the ſaid 5 *s.* by *C. Leadbetter*.

Bar.	l.	s.	d.	q.	22
¼	0	1	1	2	12
½	0	2	3	1	2
¾	0	3	4	3	14
1	0	4	6	2	4
2	0	9	1	0	8
3	0	13	7	2	12
4	0	18	2	0	16
5	1	2	8	2	20
6	1	7	3	1	2
7	1	11	9	3	6
8	1	16	4	1	10
9	2	0	10	3	14
10	2	5	5	1	18
11	2	10	0	0	0
12	2	14	6	2	4
13	2	19	1	0	8
14	3	3	7	2	12
15	3	8	2	0	16
16	3	12	8	2	20
17	3	17	3	1	2
18	4	1	9	3	6
19	4	6	4	1	10
20	4	10	10	3	14
21	4	15	5	1	18
22	5	0	0	0	0

Bar.	l.	Bar.	l.	Bar.	l.	Bar.	l.
44	10	924	210	1804	410
66	15	946	215	1826	415
88	20	968	220	1848	420
110	25	990	225	1870	425
132	30	1012	230	1892	430
154	35	1034	235	1914	435
176	40	1056	240	1936	440
198	45	1078	245	1958	445
220	50	1100	250	1980	450
242	55	1122	255	2002	455
264	60	1144	260	2024	460
286	65	1166	265	2046	465
308	70	1188	270	2068	470
330	75	1210	275	2090	475
352	80	1232	280	2112	480
374	85	1254	285	2134	485
396	90	1276	290	2156	490
418	95	1298	295	2178	495
440	100	1320	300	2200	500
462	105	1342	305	2222	505
484	110	1364	310	2244	510
506	115	1386	315	2266	515
528	120	1408	320	2288	520
550	125	1430	325	2310	525
572	130	1452	330	2332	530
594	135	1474	335	2354	535
616	140	1496	340	2376	540
638	145	1518	345	2398	545
660	150	1540	350	2420	550
682	155	1562	355	4840	1150
704	160	1584	360	7260	1650
726	165	1606	365	9680	2200
748	170	1628	370	12100	2750
770	175	1650	375	14520	3300
792	180	1672	380	16940	3850
814	185	1694	385	19360	4400
836	190	1716	390	21780	4950
858	195	1738	395	24200	5500
880	200	1760	400	26620	6050
902	205	1782	405		

Common Brewers in London, at 1 s. 4 d. per Bar.

Table VII.

See it explained on *Page* 254.

Caſh Tables for the *Exciſe* of Small *Beer*, for the Uſe of Common *Brewers* in London, at 1 *s.* 4 *d. per Barrel*, with their *Allowance* of 3 Barrels upon every 23, being deducted out of the ſaid 1 *s.* 4 *d.* by *C. Leadbetter*.

Bar.	*l.*	*s.*	*d.*	*q.* 23
½	0	0	3	1 21
½	0	0	6	3 19
¾	0	0	10	1 17
1	0	1	1	3 15
2	0	2	3	3 7
3	0	3	5	2 22
4	0	4	7	2 14
5	0	5	9	2 6
6	0	6	11	1 21
7	0	8	1	1 13
8	0	9	3	1 5
9	0	10	5	1 20
10	0	11	7	0 12
11	0	12	9	0 4
12	0	13	10	3 39
13	0	15	0	3 11
14	0	16	2	3 3
15	0	17	4	0 16
16	0	18	6	2 10
17	1	19	8	2 2
18	1	0	10	1 17
19	1	2	0	1 9
20	1	3	2	1 1
21	1	4	4	0 6
22	1	5	6	0 8
23	1	6	8	0 0

Bar.	*l.*	*s.*	*d.*
46	2	13	4
69	4	0	0
92	5	6	8
115	6	13	4
138	8	0	0
161	9	6	8
184	10	13	4
207	12	0	0
230	13	6	8
253	14	13	4
276	16	0	0
299	17	6	8
322	18	13	4
345	20	0	0
368	21	6	8
391	22	13	4
414	24	0	0
437	25	6	8
460	26	13	4

Bar.	*l.*	*s.*	*d.*
483	28	0	0
506	29	6	8
529	30	13	4
552	32	0	0
575	33	6	8
598	34	13	4
621	36	0	0
644	37	6	8
667	39	13	4
690	40	0	0
713	41	6	8
736	42	13	4
759	44	0	0
782	45	6	8
805	46	13	4
828	48	0	0
851	49	6	8
874	50	13	4
897	52	0	0
920	53	6	8
943	54	13	4
966	56	0	0
989	57	6	8
1012	58	13	4
1035	60	0	0
1058	61	6	8
1081	62	13	4
1104	64	0	0
1127	65	6	8
1150	66	13	4
1173	68	0	0
1196	69	6	8
1219	70	13	4
1242	72	0	0
1265	73	6	8
1288	74	13	4
1311	76	0	0
1334	77	6	8
1357	78	13	4
1380	80	0	0
1403	81	6	8
1426	82	13	4
1449	84	0	0
1472	85	6	8
1495	86	13	4
1518	88	0	0
1541	89	6	8
1564	90	13	4
1587	92	0	0
1610	93	6	8

Bar.	*l.*	*s.*	*d.*
1633	94	13	4
1656	96	0	0
1679	97	6	8
1702	98	13	4
1725	100	0	0
1748	101	6	8
1771	102	13	4
1794	104	0	0
1817	105	6	8
1840	106	13	4
1863	108	0	0
1886	109	6	8
1909	110	13	4
1932	112	0	0
1950	113	6	8
1978	114	13	4
2001	116	0	0
2024	117	6	8
2047	118	13	4
2070	120	0	0
2093	121	6	8
2116	122	13	4
2139	124	0	0
2162	125	6	8
2185	126	13	4
2208	128	0	0
2231	129	6	8
2254	130	13	4
2277	132	0	0
2300	133	6	8
2323	134	13	4
2346	136	0	0
2369	137	6	8
2392	138	13	4
2415	140	0	0
2438	141	6	8
2461	142	13	4
2484	144	0	0
2507	145	6	8
2530	146	13	4
5060	293	6	8
7590	440	0	0
10120	586	13	4
12650	733	6	8
15180	800	0	0
17710	1026	13	4
20240	1173	6	8
22770	1320	0	0
25300	1466	13	4
27830	1613	6	8

CHAP V.

Concerning the Buſineſs *and* Duty *of thoſe Officers of the Exciſe that ſurvey* Maltſters, *and thoſe that deal in* Cyder *and* Perry; *ſo as to prevent thoſe* Traders *from* evading *the Duty, and* defrauding *the Revenue.*

Maltſters in Foot-walks, how often to be ſurveyed.

THE Officer that has a FOOT-WALK, muſt ſurvey the Maltſters in his Town *once* at leaſt *every Day*, and *twice* where the *beſt Ciſtern*-Gauges, and the *beſt Couch*-Gauges are depending; and if theſe Surveys are made *in the Night*, muſt be in the Preſence of a CONSTABLE, or other lawful *Peace-Officer*, in caſe he cannot have Admittance without them. The Officer who has a RIDE, that he he can ride in *one Day*, muſt ſurvey the Maltſters at leaſt *four* Times in a *Week*, or *nine* Times in a *Fortnight*; and where his Diviſion is ſuch, that it cannot be rode under *two Days*, he muſt ſurvey the Maltſters *thrice a Week*, if poſſible; but this is not always to be done after one and the ſame Manner, nor beginning always at the ſame Place; but *ſometimes* to ride the ſame Round *twice together*, ſo that by doubling upon the Maltſters, and ſurveying them at Times *unexpected*, he may get the more Gauges on the Steepings, and thereby more likely to diſcover Frauds. And where the Officer's Diviſion may be rode all in *one* Day, he muſt not divide it into *two* Days riding, to avoid ſurveying as is above directed. The Officer muſt enter the *Dimenſions* and *Areas* of each *Ciſtern* and *Uting-Fat* into his *Malt-Book*; and where *Couch Frames* are uſed, he muſt take their Dimenſions when they are *empty*, and enter the ſame with the *Area* at the *Top* of his Leidger; but then he muſt not *entirely* depend upon thoſe Dimenſions, but he muſt try the ſame *upon every Gauge he takes*. He muſt likewiſe, in the Town where he reſides, take care that *one* of his Gauges be taken (if poſſible) ſome *ſhort Time* before the Water is let out of the Ciſtern, or Uting-Fat*, taking the Depth in *three* or *four* Places: And he muſt be careful before he takes his Gauge, that the Corn be raked or made *level*, and of an equal Depth, as near as poſſible, throughout *all* the Parts of the Ciſtern; ſo that by raking the Corn from the *Middle* to the *Sides* of the Ciſtern, as has frequently been practiſed, he may not be impoſed on, by taking his Gauge in ſuch Part of the Ciſtern where the Corn is not ſo deep as in other Parts. And when he finds any Difference as to the Depth, then he muſt take it at a *Medium*, and enter it into his Leidger *as the true* Gauge; and he muſt take all his Gauges with a *Braſs Plate* on his Rule or Cane. He muſt annex

Maltſters in Rides how often to be ſurveyed.

The Officer ſhould double upon the Maltſters to diſcover Frauds.

Of the Dimenſions of the Ciſterns, Uting-Fat, and Couch Frames.

The Officer to take one Gauge a while before the Water is let out of the Ciſtern.

To ſee the Corn lie level.

Where a Difference in the Depth, to take it at a Medium.

All Gauges to be taken with a Braſs Plate.

* Is the Ciſtern or Tub that Barley is wet or ſteeped in.

annex *Cyphers* to Depths and Diameters at *even Inches*, and *prefix Cyphers* to Depths *under ten Inches*. When the Barley or other Grain has been thrown out of the Ciſtern, and before it has lain *thirty Hours* out, the Officer muſt take *one or more* Gauges of it, *viz. One* as ſoon as he can after it has been thrown out, and another as near *the End* of *Thirty* Hours as his other Buſineſs will admit; and he muſt enter in his Book the *Length*, *Breadth*, and *Depth* of each *Couch*-Gauge, in caſe it be of a *Square* or *Oblong* Form; and if it be a *Circle*, the *Diameter* and *Depth*. And in caſe it be his *firſt* Couch-Gauge, he muſt expreſs the Number of Hours the Corn has been out of the Ciſtern, *before* which Number of Hours, *if under ten*, he muſt ſet this Character ⊖ *viz.* a Cypher with a Daſh through it; and place the ſame *before* the Hours *in* the Ciſtern when they are *under Ten*: And this Mark is to be ſet on the *Left Hand* of the Hours. *Note*, the *beſt* of your Ciſtern or Couch-Gauges are to be enter'd in the Column for the *beſt* Gauge, and that is to be the Charge; unleſs the ſame happen to be *exceeded* by ſome ſubſequent *Floor-Gauge*, in manner following, *viz.* Notwithſtanding the Officer's having taken the forementioned *Couch-Gauges*, within *thirty* Hours after the Corn is out of the Ciſtern; yet he muſt continue his gauging the Corn until it be quite dried off; and where he ſhall have any ſubſequent *Floor-Gauge*, when the Allowance of *Ten in the Score* is deducted, which ſhall exceed the *beſt* of the *Ciſtern* or *Couch-Gauge*, when the Allowance of *Four in the Score* is deducted; then he muſt charge from *ſuch Floor-Gauge*; and when he is taking the Couch, or *Floor-Gauges*, he muſt with his Hand, or otherwiſe, examine, and endeavour to diſcover whether ſuch Couch or Floor be all of the *ſame* Wetting: And if he finds any *unfair Addition* made from *private* Wettings, or any Mixture of *one* Steeping with *another*, before the ſame is put out on the Kiln for drying; or that the Corn which is in ſteeping, or that hath been ſteeped, to be *rammed*, *preſſed*, *trodden*, or otherwiſe forced *together*, he muſt inform the *Collector and Superviſor* therewith, that an Information may be laid againſt ſuch Offender: And whenever the Officer takes either any Couch or Floor-Gauge, he muſt enter the *then* Condition of the *Ciſtern* or *Uting-Fat*, and *By-Tub* reſpectively. And in ſuch Places where he cannot ſurvey his Diviſion all in *one* Day, if he happens to miſs a Couch, by reaſon of its being *above thirty Hours out*, in this caſe he muſt enter in his Book the *true* Number of Hours that it has been *out*, and take a Gauge of ſuch Corn, and enter the Dimenſions in the *Couch-Column*, through which he muſt make a *Daſh*, and ſo take a ſubſequent Gauge thereof; the Hours *cut*, exceeding thirty, ſhewing its Uſe, which is only for a *Compare-Gauge*. Since there have been many Inſtances of Maltſters, who after the Officers have taken their Ciſtern-Gauges, have privately conveyed away the greateſt Part of the Corn thus gauged from the Ciſtern, and ſupplied the ſame with *freſh* Barley, covering the *freſh* Barley with Part of

Of uſing of Cyphers.

When Gauges muſt be taken.

If a Square or Oblong.

If a Circle.

The Hours out.

Of denoting the Time out of the Ciſtern.

Of the beſt of Ciſtern or Couch-Gauge, and how to charge the Duty when theſe are exceeded by a ſubſequent Floor-Gauge.

Allowance on a Floor-Gauge is 10 Buſhels in 20 or $\frac{1}{2}$

Allowance on a Ciſtern or Couch-Gauge is four Buſhels in 20, or $\frac{1}{5}$

Muſt examine that the Couch or Floor be all of one Wetting.

Muſt obſerve the Corn is not forced together.

When the Condition of the Ciſtern to be entered.

When Corn has been above 30 Hours out of the Ciſtern.

Of taking a Compare-Gauge.

Of removing Part of the Corn, ſupplying the Ciſtern with freſh Barley.

How to be guarded againſt.

The Colour of the Water to be obſerved.

Of the Braſs-Receiver.

Where freſh Corn has been added.

Why the wet and dry Inches compared with the real Depth.

When ſuch Practices are diſcovered, the Collector and Surveyor muſt be made acquainted.

Maltſters to be ſurveyed on *Sunday*.

Of the Exciſe-Year, and when it begins; of which Maltſters are to be acquainted, and why.

The Officer's Duty when Maltſters neglect making Entries.

When the Officer may leave off ſurveying Maltſters.

But muſt ſtill guard againſt Fraud, and how.

And may demand Entrance.

And if he diſcerns Fraud muſt acquaint the Collector.

If he is denied Admittance.

Muſt examine the Parcels of dry Barley in the Malt-houſe.

of the Corn which was ſteeped before; the Officer muſt therefore uſe the beſt of his Skill by *biting* the Corn got from *different Depths* of the Ciſtern, or otherwiſe, to diſcover whether any unfair Practice hath been uſed, which may, in ſome meaſure, be diſcovered by the *Colour of the Water:* But the *Braſs Receiver* not anſwering the Intention of it, will afford him no Satisfaction in this Matter, unleſs it be in *ſpeculative* Gauging*. And where he diſcovers any foul Practice, he muſt make a *new Charge* upon the Maltſter of ſo much Corn, as, in his Judgment, hath been *added* to the Barley formerly charged by him. Now the Officer, when he gauges any Ciſtern, he muſt obſerve the *dry* as well *wet Inches* of ſuch Ciſtern, and compare both with the *real Depth* of the ſaid Ciſtern; by which means he will perceive whether any *Bricks, Stones, Boards*, or other Things are put into the Ciſtern to hinder his coming at the *Bottom* of it: And where he finds any ſuch Bricks, Stones, or other Things put into any Ciſtern, he muſt inform the *Collector* or *Surveyor* thereof, that they may proſecute the Offender for ſuch Practices. Since from the Nature of the *Maltſters* Trade, they may have occaſion to work on *Sundays*, the Officer muſt therefore in the Town he reſides, *before or after* Divine Service, ſurvey all the Maltſters, and ſuch Maltſters in the Country, from whom he has Reaſon to ſuſpect Frauds and unfair Practices. *N. B.* The *Exciſe Year* beginning the 24th of *June*, the Officer every Year *before* Midſummer, muſt inform each Maltſter in his Survey, that before he begins to make Malt the Year enſuing, he muſt make a new Entry of all his Rooms, Ciſterns, Kilns, and other Places and Utenſils, for the making and keeping of Malt; and if any Maltſter neglect ſo to do, the Officer muſt acquaint the *Collector* therewith. But he muſt not leave off ſurveying ſuch Maltſter's Houſe, unleſs he *expreſsly declare* to him, that he will not make Malt that Year: in which Caſe, he muſt immediately enter ſuch Declaration in the Body of his Book, and alſo among the Remarks for that Day in his Journal; after which he may leave off ſurveying at ſuch a Houſe, but muſt carefully obſerve and inform himſelf the beſt he can, whether ſuch Maltſter continues to make Malt, notwithſtanding his Declaration to the contrary. And if he has *Proof* that he has done ſo, or has good Reaſon to believe it, he is to demand Entrance, in order to ſurvey his Houſe as he does other Maltſters Houſes; and if he is admitted, and finds any Malt making, he muſt immediately acquaint the *Collector* therewith, that the Maltſter may be proſecuted for making uſe of a Ciſtern, Floor, *&c. without giving legal Notice.* But if he cannot get Admittance to enter and ſurvey, he muſt by the *firſt* Poſt acquaint the *Board* therewith; and he muſt ſend a *particular* Account of the Proof or Suſpicion he has, that the Maltſter did make Malt contrary to his Declaration. The Officer muſt frequently examine the ſeveral Parcels of *dry Barley* in each Malt-houſe, and where he finds any *ſprinkled* with Water, he may

* Every Officer knows this, and yet the Expence of it is ſtill enjoined.

may be ſure 'tis a Preparation for unfair Practice, which by his Care and Diligence he may prevent and diſcover; and he muſt, from Time to Time, ſearch after all *private and concealed* Ciſterns or Veſſels for ſteeping or keeping Barley, or other Grain, and for Rooms or Places for laying Malt: and he muſt have a particular Care that no Fraud be carried on in any *Barn*, or other Place adjoining to any Malt-houſe: and he muſt likewiſe be well ſatisfied that there is *no Door covered like the Wall*, no Range of Boards *to be taken down*, nor any *private Paſſage* whatſoever, out of the ſaid Malt-houſe into any other Place; and upon finding any ſuch, he muſt inform the *Superviſor* or *Collector* therewith, that they may lay an *Information* for the ſame againſt ſuch Offenders. The Officer muſt take particular Care, that upon each Survey he makes, that he goes *quite thro'* the Malt-houſe, and *all* the entered Rooms, to ſee how many Floors there are, having a careful Eye to each Parcel, and comparing the *Condition thereof* with the Time *out* expreſſed in his Book; and he is alſo to obſerve, that there is *no new Wetting laid between the old ones*, nor any *Addition* made by *mixing* from the *Ciſtern*, or by Malt brought from any Steeping-Place.

To ſeek for private Ciſterns, &c. *viz.* Rooms for laying Malt. Of Barns, &c. near the Malt-houſe. And private Doors and Boards to be taken down. And private Paſſages. Muſt go through the Malt-houſe and all the entered Rooms, &c. Of new Wetting laid betwixt the old ones, &c.

He muſt obſerve, That when it happens that a *Floor*-Gauge of any Steeping is taken, which will make a better Charge than the Ciſtern or Couch-Gauges of the ſame, after making the reſpective Deductions or Allowances, which are *Four* in *Twenty* for the Ciſtern or Couch, and *Ten* in *Twenty* for the Floor; the amount of the *beſt* Ciſtern or Couch, placed in the Column titled *beſt*, muſt be *cancelled* or a Line drawn through the ſame, to ſignify that it does not make a *Charge*, but that the Charge ariſes from the *Floor*-Gauge, whoſe Content muſt not in ſuch Caſe be *cancelled*. The Way that is practiſed for finding whether the amount of the *Ciſtern* or *Couch* (allowing *Four* in *Twenty*, that is $\frac{1}{5}$ Part) or the amount of the Floor (allowing *Ten* in *Twenty*, that is $\frac{1}{2}$) will make the *beſt Charge*, is this; *multiply* the Ciſtern or Couch-Buſhels by 1. 6, and the *Product* will be a Number of *Floor-Buſhels*, that are equal in Charge to thoſe Ciſtern or *Couch Buſhels*; but if you would find a Number of Couch or *Ciſtern-Buſhels*, equal in Charge to any Number of *Floor-Buſhels*, *multiply* the Floor-Buſhels by .625, and the *Product* will be the Number of Couch or Ciſtern-Buſhels, equal in Charge to thoſe Floor-Buſhels.

When a Floor Gauge will make the beſt Charge. The Method of diſcovering whether the Account of the Ciſtern and Couch or Floor-Gauge, will make the beſt Charge.

☞ The Officer muſt mark every entered Room upon the Door thereof, or ſome other viſible Part, with 1, 2, 3, &c. with white Lead and Oil, according to the Number that are entered in the whole: But he muſt let no Room be put into the Scheme (*See Page* 222.) under *two* Denominations, *viz.* it muſt not be included both in the Number of Rooms for working Malt, and in the Number for laying dry Barley or Malt, though it may happen to be uſed for both Purpoſes; for it muſt be his Endeavour that a greater Number of Rooms than are actually entered may not appear in the Scheme.

Muſt mark the enter'd Rooms.

Concerning Malt-Compounders.

Of Compounders.

THE Officer muſt take Notice, that at the *next* Sitting Day, *after* each *General Quarter Day*, he muſt bring into his Voucher *(See Page 229)* all the *Compounders* in his Diviſion, mentioning their *Names* and Number of *Heads*, and charge them in his Voucher with the Quarter's Compoſition: and, at the End of his Malt-Leidger, he muſt enter the Names of all the Compounders in his Diviſion, with the Number of Heads in their reſpective Families *compounded for*; and he muſt transfer them from Book to Book, and from Time to Time, to inform himſelf whether there has been any Addition to their Family ſince the preceding Quarter; and if he finds any Addition made, he muſt give notice thereof to the *Collector*: and the Officer, upon *every Midſummer-Day*, muſt go to all the Compounders in his Diviſion; and if they either have not, or do not then continue their Compoſition for the next Year, he muſt gauge and take an Account of all the Malt which he can find in the Hands of, or belonging to ſuch Perſon, that was a Compounder for the laſt Year, and charge him with the Duty thereof; and from thenceforth continue to ſurvey and charge him with all the Malt he ſhall make for the future.

Muſt enter the Compounders in his Books, and how.

Muſt be transferred from Book to Book, and why.

Muſt go to the Compounders, to know if they continue their Compoſition.

When to pay for Stock in Hand, &c.

The Explanation *and* Use *of the following* TABLES For Maltsters.

Tables VIII. and IX. explained.

Example.

Example. A Maltſter is charged with 381 Buſhels from *Ciſtern* and *Couch*, and 94 Buſhels from the *Floor*; I demand how much *Neat Duty* he is to pay for it?

1ſt, Look in *Table* VIII. for 381 *Buſhels:*

Now, becauſe I cannot find that Number *at once*, I take it out thus — —		*l.*	*s.*	*d.*	*q.*
	300	6	0	0	0
	80	1	12	0	0
	1	0	0	4	3
Total	381	7	12	4	3

2dly, Look in *Table* IX. for 94 *Buſhels*, and you find 1 3 10 0

Total 8 16 02 3

And thus you have found that 8*l.* 16*s.* 2*d.* 3*q.* is the neat *Duty* or *Exciſe* to be paid for 381 Buſhels of Malt from the *Ciſtern* and *Couch*, and 94 Buſhels from the *Floor*.

N. B. The *Fractional Parts* of a Farthing in theſe Tables are never regarded, unleſs they amount to *half* a Farthing.

Table VIII.

See it explained on *Page* 268.

Caſh-Tables at 6 *d. per Buſhel*, for the *Duty* on Malt IN the *Ciſtern*, or when it has been *Out of* it leſs than 30 Hours *: The *Allowance* to be made the Maltſter, *at that Time*, of 4 Buſhels in every 20, being deducted out of the ſaid 6 *d.* by *C. Leadbetter*.

N° of Buſh	s.	d.	q.	5 pts
1	0	4	3	1
2	0	9	2	2
3	1	2	1	3
4	1	7	0	4
5	2	0	0	0
6	2	4	3	1
7	2	9	2	2
8	3	2	1	3
9	3	7	0	4
10	4	0	0	0
11	4	4	3	1
12	4	9	2	2
13	5	2	1	3
14	5	7	0	4
15	6	0	0	0
16	6	4	3	1
17	6	9	2	2
18	7	2	1	3
19	7	7	0	4
20	8	0	0	0
21	8	4	3	1
22	8	9	2	2
23	9	2	1	3
24	9	7	0	4
25	10	0	0	0
26	10	4	3	1
27	10	9	2	2
28	11	2	1	3
29	11	7	0	4
30	12	0	0	0
31	12	4	3	1
32	12	9	2	2
33	13	2	1	3

Buſh.	l.	s.	d	q.	5 pts
34	0	13	7	0	4
35	0	14	0	0	0
36	0	14	4	3	1
37	0	14	9	2	2
38	0	15	2	1	3
39	0	15	7	0	4
40	0	16	0	0	0
41	0	16	4	3	1
42	0	16	9	2	2
43	0	17	2	1	3
44	0	17	7	0	4
45	0	18	0	0	0
46	0	18	4	3	1
47	0	18	9	2	2
48	0	19	2	1	3
49	0	19	7	0	4
50	1	0	0	0	0
51	1	0	4	3	1
52	1	0	9	2	2
53	1	1	2	1	3
54	1	1	7	0	4
55	1	2	0	0	0
56	1	2	4	3	1
57	1	2	9	2	2
58	1	3	2	1	3
59	1	3	7	0	4
60	1	4	0	0	0
61	1	4	4	3	1
62	1	4	9	2	2
63	1	5	2	1	3
64	1	5	7	0	4
65	1	6	0	0	0
66	1	6	4	3	1

Buſh.	l.	s.	d.	q.	5 pts
67	1	6	9	2	2
68	1	7	2	1	3
69	1	7	7	0	4
70	1	8	0	0	0
71	1	8	4	3	1
72	1	8	9	2	2
73	1	9	2	1	3
74	1	9	7	0	4
75	1	10	0	0	0
76	1	10	4	3	1
77	1	10	9	2	2
78	1	11	2	1	3
79	1	11	7	0	4
80	1	12	0	0	0
81	1	12	4	3	1
82	1	12	9	2	2
83	1	13	2	1	3
84	1	13	7	0	4
85	1	14	0	0	0
86	1	14	4	3	1
87	1	14	9	2	2
88	1	15	2	1	3
89	1	15	7	0	4
90	1	16	0	0	0
91	1	16	4	3	1
92	1	16	9	2	2
93	1	17	2	1	3
94	1	17	7	0	4
95	1	18	0	0	0
96	1	18	4	3	1
97	1	18	9	2	2
98	1	19	2	1	3
99	1	19	7	0	4

Buſh.	l.	s.
100	2	0
110	2	4
120	2	8
130	2	12
140	2	16
150	3	0
160	3	4
170	3	8
180	3	12
190	3	16
200	4	0
210	4	4
220	4	8
230	4	12
240	4	16
250	5	0
300	6	0
400	8	0
500	10	0
600	12	0
700	14	0
800	16	0
900	18	0
1000	20	0
2000	40	0
3000	60	0
4000	80	0
5000	100	0
6000	120	0
7000	140	0
8000	160	0
9000	180	0
10000	200	0

* See *Page* 191.

Table IX.

See it explained on *Page* 268.

Caſh-Tables at 6 *d. per Buſhel* for the *Duty* on Malt, when it has been OUT OF the *Ciſtern* 30 *Hours or more* * : The *Allowance* to be made the Maltſter *at that Time*, of 10 Buſhels in every 20, being deducted out of the ſaid 6 *d.* by *C. Leadbetter*.

N° of Buſh.	s.	d.	Buſh.	s.	d.	Buſh.	l.	s.	d.	Buſh.	l.	s.	d.
1	0	3	34	8	6	67	0	16	9	100	1	5	0
2	0	6	35	8	9	68	0	17	0	110	1	7	6
3	0	9	36	9	0	69	0	17	3	120	1	10	0
4	1	0	37	9	3	70	0	17	6	130	1	12	6
5	1	3	38	9	6	71	0	17	9	140	1	15	0
6	1	6	39	9	9	72	0	18	0	150	1	17	6
7	1	9	40	10	0	73	0	18	3	160	2	0	0
8	2	0	41	10	3	74	0	18	6	170	2	2	6
9	2	3	42	10	6	75	0	18	9	180	2	5	0
10	2	6	43	10	9	76	0	19	0	190	2	7	6
11	2	9	44	11	0	77	0	19	3	200	2	10	0
12	3	0	45	11	3	78	0	19	6	210	2	12	6
13	3	3	46	11	6	79	0	19	9	220	2	15	0
14	3	6	47	11	9	80	1	0	0	230	2	17	6
15	3	9	48	12	0	81	1	0	3	240	3	0	0
16	4	0	49	12	3	82	1	0	6	250	3	2	6
17	4	3	50	12	6	83	1	0	9	300	3	15	0
18	4	6	51	12	9	84	1	1	0	400	5	0	0
19	4	9	52	13	0	85	1	1	3	500	6	5	0
20	5	0	53	13	3	86	1	1	6	600	7	10	0
21	5	3	54	13	6	87	1	1	9	700	8	15	0
22	5	6	55	13	9	88	1	2	0	800	10	0	0
23	5	9	56	14	0	89	1	2	3	900	11	5	0
24	6	0	57	14	3	90	1	2	6	1000	12	10	0
25	6	3	58	14	6	91	1	2	9	2000	25	0	0
26	6	6	59	14	9	92	1	3	0	3000	37	10	0
27	6	9	60	15	0	93	1	3	3	4000	50	0	0
28	7	0	61	15	3	94	1	3	6	5000	62	10	0
29	7	3	62	15	6	95	1	3	9	6000	75	0	0
30	7	6	63	15	9	96	1	4	0	7000	87	10	0
31	7	9	64	16	0	97	1	4	3	8000	100	0	0
32	8	0	65	16	3	98	1	4	6	9000	112	10	0
33	8	3	66	16	6	99	1	4	9	10000	125	0	0

* See *Page* 191.

Concerning Cyder *and* Perry.

THE Officer muſt frequently and carefully ſurvey all the Makers of *Cyder* and *Perry* within his Diſtrict; and muſt keep an Account of what *Preſſes* are at Work, and charge the ſaid Liquors as the Law directs, EXCEPTING ſuch as ſhall be uſed by Diſtillers for *Diſtillation only*. THE Officer muſt daily ſtock his Cyder-makers *in Time of Working*; and muſt enter under its proper Number *the Preſſes* at Work, and the *Depths* and *Contents* of the *Pumice Tubs*, and on every Survey the Quantity of *Pumice* therein, *viz.* F, ¾, ½, or ¼; and when any Cyder is *returned* on Pumice, he muſt immediately enter in his *Minute-Book*, the *Time when*, and the *Number* of the Caſk, out of which the ſaid Cyder was taken, with the *wet* Inches in their proper Columns. AND he muſt take notice, that every Perſon *that ſhall buy* any Cyder or Perry, *or* any Fruit to make into Cyder or Perry, *and ſhall ſell* any of the Cyder or Perry, ſo bought or made, by the *Hogſhead*, or any *greater* or *leſſer* Meaſure, is declared by the Law to be a *Retailer* of Cyder or Perry, and is chargeable with the Duties of ſuch Cyder and Perry; and where he ſhall diſcover any Cyder or Perry to have been brought into his Diviſion, that has not been charged by him, he is to enquire from whence it came; and if it ſhall not appear to him, that the Duties thereof have been *charged* and *paid elſewhere*, he is to charge all ſuch Cyder or Perry, with the Duties ordained by Law, *viz.* if it be in the Hands of a *Retailer*, with the Duty of 10*s.* 8*d.* *per Hogſhead*; and if it be in the Hands of a *private Perſon*, with the Duty of 4*s.* per *Hogſhead* only, as *firſt Buyer*. *N. B.* That *Verjuice is to pay* the Duty of 6*s.* 8*d.* only, which is to be charged *when firſt made*. AND the Officer muſt take Notice, that by a Clauſe in the *Malt Act*, 4 *Geo.* 1. *all Dealers* in Cyder and Perry, and Perſons receiving *into their Cuſtody* great Quantities of Cyder and Perry, are to permit him to enter into ſuch Places, where the ſaid Liquors are kept, to *gauge* the ſame; and he is to charge the Duty of 4*s.* on each *Hogſhead* upon ſuch Dealers; and ſuch other Perſons, who ſhall not make it appear, that ſuch Cyder and Perry was made of Fruit *of their own Growth*, he muſt keep Stock of the ſame; and when any of the Stock ſhall be ſold, he muſt charge ſuch Part (as was before charged with 4*s.* per *Hogſhead*) with the *Retail Duty* of 6*s.* 8*d.* per Hogſhead *more*; and in caſe ſuch as has been charged with 4*s.* only, ſhall not be ſold, but removed by the Proprietor out of the Diviſion where the ſame was firſt taken an Account of, in order to be diſpoſed of elſewhere, the Officer muſt give the Proprietor a Certificate, ſignifying what Duty *it has been charged with*, before it was ſo removed.

Of Cyder and Perry-makers.

When, and how to be ſtocked.

All Dealers in Cyder and Perry, and receiving large Quantities, to permit the Officer to take an Account.

When to charge 10*s.* 8*d.* per Hogſhead.

When to charge 4*s.* per Hogſhead.

Cyder of the Proprietor's own Growth not chargeable.

Officer to keep Stock upon it, &c.

When it is removed out of the Diviſion for ſale.

The

The Riſe *and* Progreſs *of the* Exciſe *on* Cyder *and* Perry.

THO' we have entitled what follows the *Riſe* and *Progreſs* of the Exciſe on Cyder and Perry; yet we muſt refer the Reader back for the *Riſe* of the Exciſe on thoſe Liquors, as they were *originally* interwove with the Exciſe on *Beer* and *Ale*, on *Page* 240, *&c.* What farther relates to Cyder and Perry, is as follows.

1696. IN the Year 1696, it was ordained, That if any Maker of *Vinegar, Cyder, Metheglin, Mead, or Sweets* FOR SALE, ſhould hide, conceal, or convey away any Vinegar, or Liquor prepared for Vinegar, or any *Cyder*, Metheglin, Mead, or Sweets, from the Sight and View of the Gauger, to defraud the King of any of the Duties due for the ſame, he ſhould forfeit 40 *s.* for *every Barrel* of Vinegar, or Liquor prepared for Vinegar or Sweets; 40 *s.* for *every Hogſhead* of *Cyder*; and 5 *s.* for *every Gallon* of Metheglin or Mead, and ſo in Proportion for any greater or leſſer Quantity of any of the ſaid Liquors. AND it was then ordained, That if any Maker or Retailer of Vinegar, or *if any of the Liquors aforeſaid*, upon due Requeſt made by the Gauger in the *Day*-time, (or if by Night, then in the Preſence of a Conſtable) ſhould refuſe to permit the Gauger to enter his Houſe, or other Place uſed by him, and take an Account of any of *the Liquors aforeſaid*, he ſhould forfeit 15 *l.* for every Offence.

1697. AND in the Year 1697, it was ordained, That if any Maker of *Cyder* ſhould deliver any *Cyder* to any *Diſtiller* or *Vinegar-Maker* without firſt giving Notice to the Gauger, in whoſe Diviſion he inhabits, what Quantity he intends to deliver, and *when* and *to whom* he intends to deliver the ſame, he ſhall forfeit 20 *s.* for every Barrel delivered without ſuch Notice.

AND in the ſame Year *viz.* 1697, for the avoiding Diſputes in charging the Duties upon Cyder and Perry, it was ordained, That every Perſon who ſhould buy any Cyder and Perry, or any Fruit to make into Cyder or Perry, and *ſhould ſell* and of the Cyder or Perry *ſo bought or made*, by the Hogſhead, or any greater or leſſer Meaſure, ſhall be deemed a Retailer * thereof, and ſhall be chargeable with the Duties for ſuch Cyder and Perry ſo ſold or bought for Sale.

1717. IN the Year 1717, it being notorious, That ſeveral Dealers in Cyder and Perry, and Perſons receiving great Quantities thereof from diſtant or remote Places, had refuſed to permit the Officers to go into the Cellars, Storehouſes, and Places uſed by them for the laying or keeping of ſuch Cyder and Perry, to gauge and aſcertain the Duties

* Some who made Cyder from Fruit of their own Growth, and ſold it out in Buſhels, Pottles, Quarts, Pints, and other ſmall Meaſures, having imagined they were not Retailers, nor liable to the Duty, becauſe the Cyder was made of Fruit of their own Growth; for the ſettling of that Point, in the Year 1736 a Bill was brought in the *Exchequer* Court againſt a Perſon who retailed Cyder made from Fruit of his own Growth, and upon a full Hearing of the Matter, the Court declared, that all Perſons who ſold Cyder in any Quantity leſs than an Hogſhead, though it were from Fruit of their own Growth, were Retailers of Cyder, within the meaning of the Exciſe Laws, and were liable to the Duty of 10*s.* 8 *d. per* Hogſhead.

Duties by ſeveral Laws impoſed thereon; and that ſuch Dealers in Cyder and Perry, and ſuch other Perſons on ſuch Occaſions, have inſiſted, that ſuch Cyder and Perry ought not to be gauged, or taken Notice of, unleſs Proof were made of the reſpective Time and Places, when and where ſuch Cyder and Perry were bought, when the Officer's producing ſuch Proof is altogether impracticable, eſpecially where ſuch Cyder and Perry have been brought from Places remote: FOR removing ſuch Doubts, it was then ordained, That every ſuch Dealer and Perſons as aforeſaid, ſo receiving into his or their Cuſtody ſuch Cyder and Perry, ſhould be chargeable with the Duty of 4 *s. per.* Hogſhead, unleſs they make it appear, that ſuch Cyder and Perry was made of the Fruit of their own Growth, or that the Duty has been paid: And ſuch Dealers or Perſons as aforeſaid, refuſing to permit the Officer, in the Day-Time, to enter their Cellers and Storehouſes, or other Place or Places belonging to, or uſed by them, as aforeſaid, and to take an Account of their Cyder and Perry, ſhall forfeit 20*l.* for every Offence, to be ſued for, recovered or mitigated, as any Penalty by any of the Exciſe Laws now in Force; and one Half to go to the King, the other Half to the Informer.

IN the Year 1743, it was ordained, That no Perſon or Perſons ſhould be chargeable with the Duty upon Cyder or Perry, ſuch Perſon or Perſons buying the ſame for his or their private Uſe only, and not being a Dealer or Dealers in Cyder or Perry, or a Retailer or Retailers thereof. AND, That after the 25th of *March* 1744, every Perſon or Perſons whatſoever, who ſhould ſell any Quantity of Cyder or Perry, or either of them, in leſs Quantity than *twenty Gallons* at a Time, whether the ſame be made from Fruit of his, her, or their own Growth, or from bought Fruit, ſhould be deemed and taken to be a Dealer in Cyder and Perry, and a Retailer thereof, and ſhould be ſubject and liable to the Duty of 4 *s. per* Hogſhead, for ſuch Quantity of Cyder and Perry ſo ſold, *over and above all other Duties* payable for Cyder and Perry ſold by Retail. AND that every Dealer in, and Retailer of Cyder and Perry, and other Perſon and Perſons receiving into his, her, or their Cuſtody or Cuſtodies, any Quantity of Cyder or Perry, or either of them, *for Sale*; and every Perſon and Perſons who ſhould buy any Fruit to make into Cyder and Perry, or either of them, for Sale, ſhould make a true and particular Entry in Writing of the ſeveral and reſpective Store-houſes, Rooms, Cellars, Vaults, and other Places by him, her, or them reſpectively made Uſe of, for the making or keeping of Cyder and Perry, or either of them, on Pain of forfeiting the Sum of 50*l.* for every ſuch Store-houſe, Room, Cellar, Vault, and other Place made Uſe of by any ſuch Dealer or Retailer, Receiver or Maker reſpectively, without making ſuch Entry thereof as aforeſaid. 1743.

The Riſe *and* Progreſs *of the* Exciſe *on* Diſtill'd Spirituous Liquors *will be found on* Page 280.

A Cash-Table for the *Excise* on CYDER, at 6 *s.* 8 *d. per Hogshead*, by the late Mr. *John Downer*, General Surveyor *in the Distillery*.

Gall.	*s.*	*d.*	*f.*63	*Gall.*	*s.*	*d.*	*f.*63	*Gall.*	*s.*	*d.*	*f.*63
1	.	1	1. 5	21	2	2	2.42	42	4	5	1.21
2	.	2	2.10	22	2	3	3.47	43	4	6	2.26
3	.	3	3.15	23	2	5	0.52	44	4	7	3.31
4	.	5	0.20	24	2	6	1.57	45	4	9	0.36
5	.	6	1.25	25	2	7	2.62	46	4	10	1.41
6	.	7	2.30	26	2	9	0. 4	47	4	11	2.46
7	.	8	3.35	27	2	10	1. 3	48	5	0	3.51
8	.	10	0.40	28	2	11	2.14	49	5	2	0.56
9	.	11	1.45	29	3	0	3.19	50	5	3	1.61
10	1	0	2.50	30	3	2	0.24	51	5	4	3. 3
				31	3	3	1.29	52	5	6	0. 8
11	1	1	3.55	32	3	4	2.34	53	5	7	1.13
12	1	3	0.60	33	3	5	3.39	54	5	8	2.18
13	1	4	2. 2	34	3	7	0.44	55	5	9	3.23
14	1	5	3. 7	35	3	8	1.49	56	5	11	0.28
15	1	7	0.12	36	3	9	2.54	57	6	0	1.33
16	1	8	1.17	37	3	10	3.59	58	6	1	2.38
17	1	9	2.22	38	4	0	1. 1	59	6	2	3.43
18	1	10	3.27	39	4	1	2. 6	60	6	4	0.48
19	2	0	0.32	40	4	2	3.11	61	6	5	1.53
20	2	1	1.37	41	4	4	0.16	62	6	6	2.58

Hhd.	*l.*	*s.*	*d.*	Hhd.	*l.*	*s.*	*d.*	Hhd.	*l.*	*s.*	*d.*	Hhd.	*l.*	*s.*	*d.*	Hhd.	*l.*	*s.*	*d.*
1	.	6	8	21	7	0	0	41	13	13	4	61	20	6	8	81	27	0	0
2	.	13	4	22	7	6	8	42	14	0	0	62	20	13	4	82	27	6	8
3	1	0	0	23	7	13	4	43	14	6	8	63	21	0	0	83	27	13	4
4	1	6	8	24	8	0	0	44	14	13	4	64	21	6	8	84	28	0	0
5	1	13	4	25	8	6	8	45	15	0	0	65	21	13	4	85	28	6	8
6	2	0	0	26	8	13	4	46	15	6	8	66	22	0	0	86	28	13	4
7	2	6	8	27	9	0	0	47	15	13	4	67	22	6	8	87	29	0	0
8	2	13	4	28	9	6	8	48	16	0	0	68	22	13	4	88	29	6	8
9	3	0	0	29	9	13	4	49	16	6	8	69	23	0	0	89	29	13	4
10	3	6	8	30	10	0	0	50	16	13	4	70	23	6	8	90	30	0	0
11	3	13	4	31	10	6	8	51	17	0	0	71	23	13	4	100	33	6	8
12	4	0	0	32	10	13	4	52	17	6	8	72	24	0	0	200	66	13	4
13	4	6	8	33	11	0	0	53	17	13	4	73	24	6	8	300	100	0	0
14	4	13	4	34	11	6	8	54	18	0	0	74	24	13	4	400	133	6	8
15	5	0	0	35	11	13	4	55	18	6	8	75	25	0	0	500	166	13	4
16	5	6	8	36	12	0	0	56	18	13	4	76	25	6	8	600	200	0	0
17	5	13	4	37	12	6	8	57	19	0	0	77	25	13	4	700	233	6	8
18	6	0	0	38	12	13	4	58	19	6	8	78	26	0	0	800	266	13	4
19	6	6	8	39	13	0	0	59	19	13	4	79	26	6	8	900	300	0	0
20	6	13	4	40	13	6	8	60	20	0	0	80	26	13	4				

A Cash-Table for the *Excise* on CYDER, at 4 *s.* *per Hogshead*, by the late Mr. *John Downer*, General Surveyor *in the Distillery*.

Gall.	*s.*	*d.*	*f.*63	*Gall.*	*s.*	*d.*	*f.*63	*Gall.*	*s.*	*d.*	*f.*63
1	.	.	3. 3	21	1	4	0. 0	42	2	8	0. 0
2	.	1	2. 6	22	1	4	3. 3	43	2	8	3. 3
3	.	2	1. 9	23	1	5	2. 6	44	2	9	2. 6
4	.	3	0.12	24	1	6	1. 9	45	2	10	1. 9
5	.	3	3.15	25	1	7	0 12	46	2	11	0.12
6	.	4	2.18	26	1	7	3.15	47	2	11	3.15
7	.	5	1.21	27	1	8	2.18	48	3	0	2.18
8	.	6	0.24	28	1	9	1.21	49	3	1	1.21
9	.	6	3.27	29	1	10	0.24	50	3	2	0.24
10	.	7	2.30	30	1	10	3.27	51	3	2	3.27
				31	1	11	2.30	52	3	3	2.30
11	.	8	1.33	32	2	0	1.33	53	3	4	1.33
12	.	9	0.36	33	2	1	0.36	54	3	5	0.36
13	.	9	3 39	34	2	1	3.39	55	3	5	3.39
14	.	10	2.42	35	2	2	2.42	56	3	6	2.42
15	.	11	1.45	36	2	3	1.45	57	3	7	1.45
16	1	0	0.48	37	2	4	0.48	58	3	8	0.48
17	1	0	3.51	38	2	4	3.51	59	3	8	3.51
18	1	1	2.54	39	2	5	2.54	60	3	9	2.54
19	1	2	1.57	40	2	6	1.57	61	3	10	1.57
20	1	3	0.60	41	2	7	0.60	62	3	11	0.60

Hh^{d}.	*l.*	*s.*	Hh^{d}.	*l.*	*s.*	Hh^{d}.	*l.*	*s.*	Hh^{d}.	*l.*	*s.*	Hh^{d}.	*l.*	*s.*
1	.	4	21	4	4	41	8	4	61	12	4	81	16	4
2	.	8	22	4	8	42	8	8	62	12	8	82	16	8
3	.	12	23	4	12	43	8	12	63	12	12	83	16	12
4	.	16	24	4	16	44	8	16	64	12	16	84	16	16
5	1	0	25	5	0	45	9	0	65	13	0	85	17	0
6	1	4	26	5	4	46	9	4	66	13	4	86	17	4
7	1	8	27	5	8	47	9	8	67	13	8	87	17	8
8	1	12	28	5	12	48	9	12	68	13	12	88	17	12
9	1	16	29	5	16	49	9	16	69	13	16	89	17	16
10	2	0	30	6	0	50	10	0	70	14	0	90	18	0
11	2	4	31	6	4	51	10	4	71	14	4	100	20	0
12	2	8	32	6	8	52	10	8	72	14	8	200	40	0
13	2	12	33	6	12	53	10	12	73	14	12	300	60	0
14	2	16	34	6	16	54	10	16	74	14	16	400	80	0
15	3	0	35	7	0	55	11	0	75	15	0	500	100	0
16	3	4	36	7	4	56	11	4	76	15	4	600	120	0
17	3	8	37	7	8	57	11	8	77	15	8	700	140	0
18	3	12	38	7	12	58	11	12	78	15	12	800	160	0
19	3	16	39	7	16	59	11	16	79	15	16	900	180	0
20	4	0	40	8	0	60	12	0	80	16	0			0

Concerning the Buſineſs and Duty of thoſe Officers of the Exciſe, who ſurvey Diſtillers; *ſo as to prevent their* evading *the Duty, or* defrauding *the Revenue.*

The Officer's Duty where he reſides.

WHERE the Officer reſides, he muſt ſurvey Diſtillers at *leaſt once* a Day, notwithſtanding they are *ſilent*, or even if there is no Waſh depending. And thoſe who are at work, or where he finds there is Waſh of any kind preparing for Diſtillation, he muſt viſit the Diſtiller *from two to five Times a Day*, if there be a Neceſſity for it; and his Returns upon them muſt not be at fix'd Hours, but at uncertain Times of the Day; nor muſt he ſurvey in a haſty or careleſs Manner, but with due Care and Circumſpection, ſo as to prevent his being impoſed upon. And he is to obſerve, that the Nature of the Diſtillers Trade is ſuch, that thoſe who have Waſh preparing or prepared, muſt be ſurveyed on *a Sunday*, at *leaſt once*.

How oft, and in what Manner he muſt viſit the Traders.

Muſt endeavour to detect Frauds.

It muſt always be the Officer's Endeavour to find out all *private Backs*, or *Waſh* that is *concealed* *, and to endeavour to diſcover whether any Diſtiller ſets his Stills at work, or *privately* carries out Low Wines or Spirits, or at *unlawful Hours* † without giving due Notice; or if he is guilty of any other unlawful Practices.

What muſt be done each Survey.

The Officer muſt take an Account of all the Materials fit for Diſtillation *every Time* he ſurveys, alſo of what Stills are at Work, and what they are charged with; and muſt, before he leaves the Houſe, enter the ſame in his Book. (*Note*, The *Minute-Books* formerly enjoined, are no longer to be made uſe of.) And he muſt enter the Time of every Survey he makes upon a *Minute-Paper*, which is to be left in the Work-houſe of each Diſtiller. The Officer muſt fix in his Book all the *Waſh Backs* that belong to each Diſtiller; he muſt alſo gauge the Waſh he finds in the Backs, and this he muſt do by taking the *dry Inches* to *half an Inch*; which muſt be caſt up by Tables prepared for that End. The Officer muſt be careful to obſerve not only the *Quantity* but the *Quality* of all *Waſh* and *Low Wines*, &c. for which Purpoſe he muſt be always provided with a *Viol*, and muſt uſe his utmoſt Endeavour to find out what thoſe Materials are that all Waſh is made of, or how mixed by the Diſtiller.

The Characters for denoting the Quality *of Waſh, are*

Characters to ſignify the Quality of the Waſh.

B. For Brewers Waſh or Tilts.
C. For Cyder or Perry.
F. For foreign Fruits.
G. For Malt.
L. W. For Low Wines.
M. For Melaſſes.
S. W. For Sugar Water.
S. For Scums.
W. For Wine.

N. B. And *in Stocking* any exciſeable Liquors, write (F) to a *full* Caſk or Veſſel; and (oo) to an *empty* one. AND when the *wet* or *dry* Inches are *even*, and *leſs than* 10, you are to place a Cypher *before* and *after*, thus, 09.0; and if *more than* 10, only *after* them, thus, 19.0; and if *leſs* than *one* Inch, thus, 005, where your Columns will admit of it; or there is Room *to alter* your true Gauge by *preponing* or *poſtponing* any Figure.

The

* See *Chap.* VII. *Page* 280 throughout. † See *Page* 198.

The Officer, at the ſetting of each Back, muſt place a *proper Character* over his Gauge of the Waſh, to denote of what kind it is; and if at any Time he finds it *mix'd* with *other Materials* of a *higher Duty*, it muſt be titled accordingly; and the *proper Character* muſt be put over the *Decreaſe* of Waſh ſet out in the Column for that Purpoſe; and he muſt charge the *Low Wines*, and *Spirits* drawn from the ſeveral Sorts of Waſh, as the Law directs *. The Officer when any *By-Caſks* of Waſh are brought into any Diſtiller's Cuſtody, muſt enter in a Column for that Purpoſe the *Number* of them againſt each Survey, and a Stock muſt be taken daily of *every Caſk* diſtinctly in the moſt convenient Part of his *Stock-Book*, and he muſt put the *proper Characters* over the *firſt* Stock of each ſuch Caſk. The Officer, when he finds any *Decreaſe* of *Melaſſes Waſh*, muſt charge the Diſtiller with ſo much *Low Wines*, or *Spirits* of the *firſt* Extraction, as *a fourth Part* of the ſaid Waſh *decreaſed* ſhall amount unto: and with ſo much *proof Spirits* of the *ſecond* Extraction, as *two third Parts* of the *fourth Part* of Waſh *decreaſed* ſhall amount unto: But in caſe he finds that his Gauge of *Spirits*, or of *Low Wines*, does exceed that *Quantity*, he muſt make his Charge from his Gauge, and this he is to do as follows:

Muſt characterize the *Waſh* in each Back, and the *Decreaſe*.

Of By-Caſks.

How to charge any Decreaſe of *Melaſſes* Waſh.

☞ He muſt ſet out, in the Columns for that Purpoſe, *the Quantity of Waſh decreaſed each Day*, and likewiſe *the Quantity of Low Wines he finds drawn from it*, and he muſt make *his Charge* of *Low Wines* either from *one fourth Part* of the *Decreaſe of Waſh*, or from his Gauge of the *Low Wines*, whichſoever of them is beſt; and if *one fourth Part* of the *Waſh* amounts to *more* than his Gauge of the *Low Wines* drawn from it, he muſt ſet forth *the Difference* in the Column for the *Decreaſe of Low Wines*, and write over-againſt it *pre.* to ſhew that he preſumes ſo much *Low Wines* is drawn and *decreaſed* more than he has got an Account of, and *two Thirds* of that *preſumed Quantity* he muſt charge into *Spirits*. And if there be any *Low Wines* diſtilled *that* Day, the Officer muſt *add* the Quantity of *Low Wines* he actually finds *decreaſed*, and the *preſumed Decreaſe* together, and charge *two Thirds* of the *Total* into *Spirits*; except it be *exceeded* by his Gauge of *Spirits*, and in ſuch Caſe he muſt obſerve to charge from his *Gauge*.

This muſt be carefully attended to.

The Officer muſt obſerve the ſame Method in making his Charges from Waſh made of *Corn* or *Cyder*, with regard to their *reſpective Proportions* granted by Law, *i. e.* A *fourth Part* of *the Decreaſe* of *Malt* Waſh muſt be charged into *Low Wines*, and *three fifth Parts* of *that fourth* muſt be charged into *Spirits*.

Of Waſh from *Corn*.

And *one fifth Part* of the *Decreaſe* of the Waſh of *Cyder* or *Perry* is to be charged into *Low Wines*, and *Half* of that *Fifth* is to be charged into *Spirits*. Nevertheleſs, in either

Of Waſh from *Cyder*.

* See *Pages* 283, 284, &c.

Caſe, if his *Gauge* of Low Wines or Spirits *exceed* the above-mentioned *Proportions*, he muſt charge from his *Gauge*.

☞ [*The Officer is to obſerve, that by an Act paſſed in the* third of George II. *any Diſtiller, who ſhall receive* any *Quantity of* Cyder *or* Perry *into his Cuſtody, muſt give Notice in Writing to the Officer* forty-eight *Hours before* any *Quantity of the ſame ſhall begin to be put into any Still, on Penalty of* Five Pounds.]

What is to be obſerved where the Law has not ſettled the Proportion to be charged for *Decreaſe*.

The Officer is to obſerve, That the Law has not ſettled *what Proportion* is to be charged from the *Decreaſe* of any other *Waſh*, or other *Materials* prepared for making of Low Wines or Spirits, *i. e. Sugar-Water, Foreign Fruits, Foreign Wines, Scums*, &c. Therefore when the Officer finds any of theſe Materials preparing, or prepared, he muſt ſatisfy himſelf of *the Strength of it*, the better to prevent his being impoſed on by the Diſtiller; for which Reaſon, where it is poſſible, it is requiſite he, or ſome other Officer or Aſſiſtant, ſhould attend the *working off* the ſame, to ſee and obſerve *its Produce*, or attend *one* Still of a Back *at leaſt*, and charge the reſt of it to that Back according to *ſuch Produce*. Whenever the Officer finds any ſuch Waſh, *&c.* miſſing, (*i. e* ſuch whoſe *Length* of Low Wines and Spirits the Law *has not aſcertained*,) and of which he had got an Account of at any Time not exceeding *twenty-four Hours* before; and if he ſhall not, on demand, receive Satisfaction what is become of the ſame, in ſuch Caſe, the Officer muſt charge the Diſtiller with ſo much Low Wines and Spirits, as ſuch Waſh or Liquor ſo miſſing would, to the beſt of his Judgment, *reaſonably* have produced; and therefore the Officer muſt never fail having *one or more* Gauges of ſuch Waſh every *twenty-four Hours*.

When *Corn* is brewed for Diſtillation.

The Officer, when he has in his Survey a Diſtiller who brews *Corn* for Diſtillation, be it *malted* or *unmalted*, he muſt be careful to examine the *Coolers* after the Brewing is over, and take Care to have a Gauge of all the *Worts* or *Waſh* he diſtils. He muſt alſo take a Gauge of *each Brewing*, that he may compare the ſame with the *Quantity of Waſh* made therefrom; and he may reaſonably expect from *a Quarter of Malt* about *three Barrels*, or *one Hundred and thirty-two Gallons Wine Meaſure*; and ſo, *in Proportion*, for a *greater* or *leſſer* Quantity.

No Tilts, *&c.* to be *delivered* or *received* without Notice.

The Officer muſt obſerve, that no *common Brewer*, or *Maker of Cyder*, is to deliver any Cyder, Ale, Beer, Vinegar Beer, Tilts, or Waſh, to *any Diſtiller* or *Vinegar-Maker*, without *firſt* giving the Officer Notice, on pain of forfeiting *twenty Shillings* for every Barrel of ſuch Liquors delivered without Notice given. Nor is any Diſtiller to prepare or receive any Waſh from *Melaſſes*, or *other Materials*, until he has drawn off and diſtilled all the Liquors made or prepared from *Corn*.

Of mix'd Waſh.

The Officer, in Caſe any Diſtiller *mixes* Spirits from malted Corn with Melaſſes Waſh, or Waſh from any foreign Materials,

rials, he muſt charge all the Low Wines drawn from it, as Low Wines drawn from *Foreign Materials*. But if ſuch Mixture hath *any Melaſſes* in it, he muſt charge *one Fourth* into *Low Wines*, and *two Thirds* of that into *Spirits*.

[N. B. *All* Spirits, *drawn from a Mixture of* Spirits *with* any Kind of Waſh, *or* other Liquors, *except common Water, are to be charged as Low Wines drawn from* Foreign Materials.]

The Officer muſt be very careful when he finds a Still charged, that he is not impoſed upon, by a Pretence that they are *rectifying*; and either then, or at any other Time, when he finds a Still charged, if he has Cauſe to ſuſpect a Fraud, he muſt examine what Materials are in ſuch Still, by taking off the Head of it, *if it be not at Work*; but if it be at work, he muſt ſtay till it ſhall be wrought off, and then examine what is in it. 'Tis requiſite, when he has an Opportunity, to take a Gauge of the Waſh *in the Still*, in order to compare the ſame with the Quantity gone out of *the Backs*. When the Officer is on his Survey, if he finds a Diſtiller at work, he muſt enter his Name and Time of his Survey at *the End* of his Book, with the *Number* of each Still that is at work, denoted with the *proper Character*, to ſhew what each is charged with; and he muſt transfer thoſe Remarks into his *Journal*.

What is to be done where a Still is found charged.

When at Work.

And the Officer, when he finds any Still *charged*, he muſt enter, in the *proper Column*, a *Character* to denote what it is *charged with*.

The Characters to be made uſe of are as follows.

1. A. For Waſh.
2. B. For Low Wines to be made into Spirits.
3. R. When rectifying of Spirits.
4. R. L. After-Runnings of Low Wines.
5. X. For Strong Waters.

Waſh, &c. how to be characterized.

The following Characters, and *no other*, muſt be made Uſe of to ſhew in what Condition the Officer leaves a Still.

1. ⊙ When not come down.
2. V Newly come down.
3. ⊢ About half off.
4. Λ Near off.
5. *Off*. When quite off.

Condition of the Still, how to be characterized.

N. B. The Officer is to enter, in a Scheme, the Contents of every Diſtiller's Entry in the Front of his Book.

See the *Tables* for caſting up *theſe* Duties at the End of *Ch.* VII.

CHAP. VII.

Shewing the Riſe *and* Progreſs *of the* Exciſe *on* Diſtill'd Spirituous Liquors.

SOME Part of the *Diſtiller*'s Duty being originally interwoven with that of the *Brewer*'s, it is requiſite that ſhould be likewiſe conſulted. (See *Page* 240.) In the Year 1689, it was ordained That if after the 20th Day of *July*, any Diſtiller, or Maker of any Low Wines, after the Gauger hath taken an Account of his Low Wines, ſhould ſell, diſpoſe of, or remove the ſame, or any Part thereof, without drawing it off a ſecond Time, he ſhould forfeit five Shillings for every Gallon, to be recovered as any other Penalties are by the Exciſe Laws. AND it having been found, that the Payment of the Duties upon Strong Waters, Aqua Vitæ, and Spirits, had been much avoided, by reaſon that the Officers were not duly permitted to enter into the Diſtill-houſe, and other Places belonging to, or uſed by the Diſtillers, or Makers of the aforeſaid Liquors, by which means the Penalties formerly impoſed were avoided; becauſe the Officers could not make Proof that there had been any Sale made of their Goods before the Duty was paid; for remedy of which, it was then ordained. That if any Diſtiller ſhould (upon Demand made by the Officer, in the Day-time, or if it be in the Night-time, in the Preſence of a Conſtable) refuſe to permit the Officer into his Diſtilling-houſe, or any other Place belonging to, or uſed by him, he ſhould incur the Penalties impoſed and inflicted by the Exciſe Laws, without the Informer's being obliged to prove that the Diſtiller had ſold or diſpoſed of any Part of his Goods before he had paid the Duty for the ſame.

1689.

TWO Years after, *viz.* *Anno* 1691, for the bettter collecting the Duty upon Low Wines and Strong Waters, and preventing the Abuſes therein, it was ordained, That no Maker of Low Wines, Spirits, or Strong Waters for ſale, ſhould after the firſt Day of *March* 1691, ſet up, make uſe of, or alter any Still, or other Veſſel, for the brewing or making of any Worts, Waſh, Low Wines, or Spirits for ſale; or keep, or make uſe of any private Store-houſe, or concealed Place, without he firſt gives notice at the next Exciſe-Office, under the Penalty of 20*l.* for every Still, Copper, Tun, or other Veſſel, ſo ſet up, uſed, or altered; and for every private Warehouſe, Store-houſe, or concealed Place ſo made uſe of: AND that every Perſon in whoſe Occupation any Place whatſoever is, or ſhould be, where any concealed Still, Copper, Tun, Caſk, Waſh-Batch, or other Veſſel ſhould be diſcovered, ſhould likewiſe forfeit 20*l.* one Half to the King, and the other Half to the Informer: AND that, if any common Diſtiller ſhould hide, or convey any Low Wines, Spirits, or Strong Waters, out of the Sight or View of the Officer, to avoid paying the Duty, he ſhould forfeit for every Gallon the Sum of 5*s.*

1691.

FIVE Years after, *viz.* *Anno* 1696, for the preventing Frauds and Abuſes committed by Diſtillers, it was ordained, That all Diſtillers ſhould draw their Low Wines, Brandy, or Spirits of the firſt Extraction from Drink made of malted Corn entirely, without any Mixture of other Materials whatſoever; and that the Officer ſhould keep an Account of the Drink, Worts, and Liquors, prepared by Diſtillers for making ſuch Low Wines; and in caſe he finds any other Materials mixed with Malt-

1696.

Malt-Drink, either in the brewing, or otherwiſe, he ſhall charge the Low Wines drawn from the Drink ſo mixed, with the Duty of 12 *d. per* Gallon. AND that no Malt Diſtiller ſhould receive, or prepare any Waſh from Melaſſes, or other Materials, until he had drawn off all the Liquors made from Corn, on pain of forfeiting 5 *l.* for every Barrel of ſuch Liquor made of Corn found undiſtilled, or drawn into Low Wines as aforeſaid. BUT if any Officer, knowingly, ſhall charge any Low Wines as if it were made from malted Corn, when in fact it is not, ſuch Officer ſhall not only forfeit 10 *s.* for every Gallon of Low Wines ſo injuriouſly charged, but be diſqualified for exerciſing his Employment. AND to encourage the Diſtillers to draw Spirits or Brandies from malted Corn, not mixed with any other Materials, they are allowed a Drawback of 3 *d.* a Gallon on Exportation. [See Ch. XX. §. IX.] IF any Officer ſhall find any Quantity of decayed Wines, Cyder, or other Materials fit for Diſtillation, or preparing for it, in the Cuſtody of any compound or rectifying Diſtiller, and is apprehenſive that the Diſtiller may extract Low Wines from it, and if the Officer finds any Still charged or prepared to work, he may take off the Head of ſuch Still, (provided it be not actually at work, to examine what Materials it is charged with; and if the Still is at work, he may ſtay in the Diſtilling-houſe till it is wrought off, and then examine what it was at work on; and if the Diſtiller ſhould refuſe to let the Officer ſtay in his Diſtilling-houſe, and to examine his Still as aforeſaid, ſuch Diſtiller ſhall forfeit 20 *l.* for every Offence. AND after *Lady-Day* 1697, all Stills and other Utenſils uſed by ſuch Diſtiller, or other Perſon, for diſtilling for Sale or Exportation, ſhall be liable to all Arrears of Exciſe, into whoſe Hands ſoever they ſhall come, or by whatſoever Conveyance or Title they ſhall be claimed; and the Debts and Penalties may be levied, in all Caſes, againſt ſuch Utenſils as if the Offender was real Owner thereof. AND all Materials prepared, or preparing for Diſtillation, and alſo all Low Wines, Spirits, or Strong Waters found in any Store-houſe, or Veſſel, uſed by any Diſtiller, the Officer ſhall take an Account of, and if he ſhall miſs any Waſh, made from Corn or other Materials, for making Low Wines, which he found or gauged within 24 Hours before, he may charge ſuch Diſtiller with ſo much Low Wines as ſuch Waſh or other Materials would reaſonably have made, if he receives not, on demand, Satisfaction what is become thereof. AND for the more effectual ſecuring the Duties on Low Wines, Strong Waters, Aqua Vitæ, and Spirits, it was ordained, That no Diſtiller ſhould ſet his Stills at work for the making any of the ſaid Liquors, or ſhould deliver or carry out any of the ſaid Liquors, but betwixt the Hours of Five in the Morning and Eight at Night, from the 29th of *September* to the 25th of *March*, and between the Hours of three in the Morning and nine at Night, from the 25th of *March* to the 29th of *September*, without firſt giving Notice to the proper Officer; and every Diſtiller offending therein, ſhall forfeit 10 *l.* for every ſuch Offence.

THE very next Year *Anno* 1697, ſince the Penalties to which Diſtillers had been ſubjected had been found inſufficient to prevent Frauds, it was then ordained, That if any Diſtiller, after the 10th of *April* 1697, ſhould ſet up any Copper, Still, Tun, Caſk, Waſh-Batch, or other Veſſel; *or* if he ſhould alter or enlarge any ſuch Tun or Veſſel already ſet up; *or* if he ſhould keep or have any Copper, Still, Tun, Caſk, Waſh-Batch, or other Veſſel; *or* if he ſhould have or keep any private Warehouſe, or other Place for the keeping, brewing, or making 1767.

any

any Waſh, Worts, Low Wines, or Spirits, without firſt giving Notice at the next Exciſe-Office, he ſhould forfeit for every Copper, Still, Tun, Caſk, Waſh-Batch, Warehouſe, or other Place ſo ſet up, altered or enlarged, kept private or concealed, the Sum of 20*l.* And for every ſuch private Copper, Still, Tun, Caſk, Waſh-Batch, Warehouſe, or other Place, found in the Poſſeſſion of any other Perſon, ſuch other Perſon ſhould likewiſe forfeit the Sum of 50 *l.* AND for the avoiding Diſputes, it was ordained, That any Perſon making or having in his Poſſeſſion any Cyder, Waſh, or other Materials fit for Diſtillation, and having any Still or Stills containing 20 Gallons or more, in his Poſſeſſion, ſhould be deemed a common Diſtiller for Sale, and ſhould be liable to the Duties and Penalties inflicted by the Exciſe Law. AND theſe Fines and Penalties to which Offenders were then made liable, are to be recovered either by the Exciſe Laws, or in any Court of Record at *Weſtminſter*, and to be applied one Half to the King, and the other Half to the Informer. AND it was then declared, That it ſhould be lawful for any Perſon who had or ſhould ſet up any Works or Offices, and give Notice thereof within ten Days after the entering ſuch Office or Work, to diſtil for Sale, or to be retailed, Low Wines or Spirits from malted Corn or Cyder, and to rectify any ſuch Spirits of their own making only, provided they pay the Duties, and are ſubject to ſuch Fines and Penalties as other Diſtillers are, notwithſtanding any Law, Charter, or other Thing to the contrary.

1698. THE next Year after, *viz. Anno* 1698, for preventing Frauds committed by Diſtillers, and others who keep private and concealed Ware-houſes, Store-houſes, or other Places, or having private or concealed Stills, Backs, or other Veſſels or private Pipes, Stop-cocks, and other private Conveyances, it was ordained, That every Diſtiller ſhould demoliſh all private Pipes and Conveyances, and ſtop up all Holes in his Back or Waſh-Batch before the 28th of *February*, 1698; and after that Time, if he made uſe of any ſuch, he ſhould forfeit for every ſuch Pipe, Stoop-cock, Conveyance, or Hole, 100 *l.* And the Officer is impowered to ſearch for ſuch Pipes, and to follow them, *&c.* as in the Caſe of Brewers, which ſee on *Page* 249. But any Diſtiller may uſe publick Pipes for letting his Waſh or Worts out of one publick Veſſel into another. AND if the Gauger or Officer has Cauſe to ſuſpect that there is any private or concealed Still, Back, or other Veſſel, Waſh, Low Wines, Spirits, or other Materials, preparing for Diſtillation, kept in any Houſe or Place, and makes Affidavit thereof before a Juſtice of the Peace, ſetting forth the Grounds of his Knowledge or Suſpicion, by Virtue of a Warrant from the Juſtice, he may then, in the Day-time, and in the Preſence of a Conſtable, break open the Door, or any Part of ſuch Houſe or Place, and enter and ſeize the Veſſels and Goods found therein, and keep them in ſuch Place where they were found; and in caſe they are not claimed in *twenty* Days next after Seizure, by the true Owner, then the ſaid Veſſels and Goods found therein ſhall be abſolutely forfeited, and may be ſold at the next general Day of Sale, which ſhould be appointed by the Commiſſioners or their Officers, after the Expiration of the twenty Days, (but there muſt be an Adjudication of the Forfeiture before there can be a Sale; and after Charges have been deducted out of the Produce thereof, one Half to go to the Crown, and the other Half to the Informer. AND that if any ſuch Veſſels or Goods, ſo found, ſhould be claimed within the 20 Days*, the Perſon claiming the ſame ſhall forfeit 200 *l.* for every Warehouſe, or other Place, in which any Back or other Veſſel ſhould be found, and likewiſe for every Still, Back,

* See *Page* 283.

Back, and other Veſſel found therein; but if on the contrary no private or concealed Back, Still, or other Veſſel, Spirits, Low Wines, Waſh or other Materials for Diſtillation ſhould be found, the Gauger ſhould make good the Houſe ſo broken up, or make ſuch Satisfaction as two of the next Juſtices, one being of the *Quorum*, ſhould adjudge; or the Party may bring his Action at Law for his Damage, which is to be paid out of the Revenue of Exciſe. AND it was ordained, That if any Diſtiller, or any other Perſon ſhould oppoſe the Officer or Gauger in the due Execution of theſe Powers given him, he ſhould forfeit the Sum of 200 *l.* to be recovered by any Laws of Exciſe then in force; one Half to go to the King, the other Half to the Informer. SINCE Diſtillers, under pretence of rectifying of Spirits, do frequently mix Spirits with Waſh, and other Liquors, and afterwards diſtil the ſame, it was declared, That all Spirits drawn from any Mixture of Spirits with any kind of Waſh or other Liquor, (except common Water) ſhould be eſteemed to be Low Wines, and be chargeable with the Duties impoſed upon Low Wines drawn from foreign Materials.

THE very next Year, *viz. Anno.* 1699, it having been diſcovered that any Quantity of Waſh made of Melaſſes, will, upon Diſtillation, produce $\frac{1}{4}$th Part of the ſame Quantity into Low Wines, or Spirits of the *firſt* Extraction; and that ſuch Low Wines, or Spirits, upon the *ſecond* Diſtillation, will produce $\frac{2}{3}$ Parts of the Quantity of the ſame Low Wines, or Spirits, into proof Spirits, or Spirits of the *ſecond* Extraction: AND becauſe it had been found that Diſtillers frequently concealed large Quantities of theſe Low Wines and Spirits, before the Gauger has charged the ſame, and ſo defraud the Revenue of the Duties ſuch Low Wines and proof Spirits are liable to; to remedy which, it was ordained, That after the 10th of *May*, 1699, the Gauger ſhould keep an Account of all Melaſſes Waſh found in the Hands of any Diſtiller; and when he finds any Decreaſe thereof, he ſhould charge the Diſtiller with ſo much Low Wines of the firſt Extraction, as $\frac{1}{4}$ Part of the Waſh ſo decreaſed ſhould amount unto, and likewiſe with ſo much Proof Spirits, or Spirits of the ſecond Extraction, as $\frac{2}{3}$ Parts of the Low Wines, or Spirits of the firſt Extraction, charged as aforeſaid, ſhould amount to; and the Diſtiller muſt pay the Duties of the Low Wines and Spirits accordingly. IT having been formerly ordained, (*Anno* 1698) that every private Still, Back, or other Veſſel ſhould be ſeized, and that the Owner of ſuch Still, Back, and other Veſſel, claiming the ſame within twenty Days after ſuch Seizure, ſhould forfeit 200 *l.* for every ſuch Still, Back, and other Veſſel*; and whereas it has been doubted, whether the Owners of ſuch Stills, Backs, &c by refuſing to claim them within twenty Days, may not avoid the ſaid Penalties; in order to clear up that Matter, it was ordained, That after the 10th Day of *May* 1699, the Proprietor, or the Perſon in whoſe Cuſtody the Utenſils ſhould be found, ſhould forfeit the ſaid Penalty of 200 *l.* for every ſuch Still, Back, and other Veſſel. 1699.

TWO Years after, it was ordained, That after the 24th of *June*, 1701, no Information againſt any Diſtiller ſhould be laid or proſecuted, unleſs it were within three Months after the Offence committed; and the Diſtiller muſt have Notice given him, or left at his Houſe within a Week after the Information is laid, that a timely Proviſion may be made for his Defence. AND it was likewiſe ordained, That no Perſons ſhould ſell Brandy, or Spirits by retail, to be drank in their Houſes, without ſuch Licence † as Alehouſe-keepers have, and being ſubject to the ſame 1701.

* See *Page* 282. † See *Pages* 287, 289.

ſame Penalties and Forfeitures as Victuallers ſelling without a Licence. And the Juſtices and other Officers have the ſame Power given them over ſuch Retailers of Brandy or Spirits, as they have over common Alehouſe-keepers.

1705. FIVE Years after, *viz. Anno* 1705, it having been diſcovered, that any Quantity of Waſh made of Drink brewed from *malted* or *unmalted* Corn, will produce, upon Diſtillation, $\frac{1}{4}$ Part of the ſame Quantity into Low Wines of the *firſt* Extraction; and that ſuch Low Wines, upon the *ſecond* Diſtillation, will produce $\frac{3}{5}$th Parts of the Quantity of the ſame Low Wines or Spirits, into Proof Spirits, or Spirits of the ſecond Extraction: AND it having likewiſe been found, that any Quantity of Waſh made of Cyder or Perry, will produce $\frac{1}{5}$th Part of the ſame Quantity in Low Wines, or Spirits of the firſt Extraction, and that the ſame Low Wines, or Spirits, upon the *ſecond* Dillation, will produce $\frac{1}{2}$ Part of the Quantity of the ſame Low Wines, or Spirits into Proof Spirits, or Spirits of the *ſecond* Extraction: AND whereas Diſtillers have concealed great Quantities of ſuch Low Wines and Spirits from the Sight of the Gauger, before he can come to take an Account of the ſame; to remedy which, it was ordained, That after the 25th of *March*, 1705, the Gauger ſhould keep an Account of the ſaid ſeveral ſorts of Waſh in the Hands of any Diſtiller; AND upon any Decreaſe of ſuch Waſh made from the malted or unmalted Corn, ſhould charge $\frac{1}{4}$ Part of ſuch Waſh ſo decreaſed, as Low Wines, and $\frac{3}{5}$ of ſuch Low Wines as Proof Spirits: AND upon any Decreaſe of *Cyder* or *Perry* Waſh, the Gauger ſhould charge $\frac{1}{5}$ of ſuch Decreaſe as Low Wines, and one $\frac{1}{2}$ of ſuch Low Wines as Proof Spirits.

1717. TWELVE Years after, for preventing Frauds in the Duties on Low Wines and Spirits carried Coaſt-wiſe, it was ordained, That after the 5th of *June*, 1717, all Low Wines, or Spirits brought by Sea Coaſt-wiſe from any Port or Place in this Kingdom, to any other Port or Place in this Kingdom, without a Certificate from the proper Officer of Exciſe where the ſame were made, ſhewing that the Duty thereof hath been paid, ſhould be forfeited; and ſhould be ſeized by any Officer of the Cuſtoms or Exciſe of the Port or Place where the ſame ſhould be brought in; and is to be diſtributed one Half to the Crown, and the other Half to the Perſon, that ſhall inform, or ſue for the ſame.

1720. THREE Years after, all Diſtillers or Dealers in Brandy, Arrack, Rum, Strong Waters or Spirits, let them be *Britiſh* or *Foreign*, either by *wholeſale* or *retail*, were enjoined to enter by the firſt of *Auguſt*, 1720, at the next Exciſe-Office, all their Warehouſes, Store-houſes, Rooms, Shops, Cellars, Vaults, and other Places uſed by them for the keeping of Brandy, Arrack, Rum, Spirits, or Strong Waters, either *Britiſh* or Foreign, for Sale; and alſo all the Brandy, Arrack, Rum, Spirits, and Strong-Waters, *Britiſh* and Foreign, which ſhould be therein at the Time of making ſuch Entries, upon pain of forfeiting 20 *l.* for every Place ſo made uſe of, without making Entry thereof, together with all the Brandy, Arrack, Rum, Spirits, and Strong Waters, which ſhould be found therein, and alſo the Caſks and Veſſels in which the ſame is contained. AND all other Perſons who ſhould become Diſtillers, or Dealers in any ſuch Brandy, Arrack, Rum, Spirits, or Strong Waters, *after* the firſt of *Auguſt* 1720, were enjoined to make the like Entry of their Warehouſes, and other Places intended for the keeping of Brandy, Arrack, Rum, Spirits, or Strong Waters, either *Britiſh* or Foreign, before they take into their Cuſtody or Poſſeſſion any of the ſaid Liquors, under the Penalty of 20 *l.* for every Warehouſe or other Place, without making Entry

Entry as aforeſaid, together with all the Brandy, Arrack, Rum, Spirits, and Strong Waters which ſhall be there found, and alſo the Caſks and Veſſels in which it ſhall be contained. AND no Brandy or Spirits, either *Britiſh* or Foreign, ſhall be brought into ſuch Warehouſes or other Place, without giving Notice to the Officer, and producing a Certificate or Permit, ſetting forth the Quantity and Quality of ſuch Liquors, and that the Duties have been paid; *or* that they have been condemned as forfeited; *or* that they were Part of the Stock of ſome Importer, Diſtiller, or Dealer in Brandy, of which a legal Account had been taken by the proper Officer, upon pain of forfeiting the ſame, together with all the Caſks and Veſſels in which it is contained. AND the Exciſe Officers may enter ſuch Warehouſes and other Places, by Day or by Night, (but if in the Night, it muſt be in the Preſence of a Conſtable) to take an Account of the Quantity and Quality of the ſaid Liquors; and every ſuch Diſtiller or Dealer, who ſhall hinder or refuſe the Officer to enter ſuch Warehouſe, Shop, or other Place, or to take an Account of the Goods therein, forfeits 50 *l.* for every ſuch Offence. IT was farther enjoined, That after the ſaid firſt of *Auguſt*, no Brandy, Arrack, Rum, Spirits, or Strong Waters, either *Britiſh* or Foreign, ſhould be ſold, or expoſed to Sale, but in ſuch entered Places, upon Pain of forfeiting 40 *s.* for every Gallon *, and ſo in proportion for a greater or leſſer Quantity. OFFICERS are required, upon Requeſt of the Seller, (of all ſuch Brandy, Arrack, Rum, Spirits, or Strong Waters, as aforeſaid, ſold in ſuch entered Places,) to give *Certificates* or *Permits* to the Buyer of the Quantities ſo ſold, and that the Duty has been paid, to prevent the ſeizing thereof by the Officer of the Diviſion to which it is intended to be carried. AND it was farther enjoined, That no Brandy, Arrack, Rum, Spirits, or Strong Waters, exceeding *one Gallon*, ſhould be moved by Land or by Water, without ſuch Permit or Certificate as aforeſaid, upon pain of forfeiting the ſaid Liquors, and the Caſks in which they are contained. AND every Perſon who ſhall have in their Cuſtody any Brandy, Arrack, Rum, Spirits, or Strong Waters, exceeding the Quantity of 63 Gallons, ſhall be deemed and taken to be a Seller and Dealer in theſe Goods, and ſubject to the Survey of the King's Officer. AND theſe Penalties and Forfeitures are to be ſued for, or mitigated, by the ſame Ways and Methods as any Penalty by any of the Laws of Exciſe may be levied or recovered: And after the Charges of recovering the Penalty is deducted, one Half of it ſhall go to the King, the other Half to the Informer. AND to encourage the Officers of the *Exciſe* and *Cuſtoms* to ſeize ſuch Brandies, or other Liquors as ſhall be clandeſtinely imported, it was enjoined, that all Seizures made of any Brandy, Arrack, Rum, Spirits, or Strong Waters, *Britiſh* or Foreign, within the Bills of Mortality, in purſuance of any Law, (except where the Seizure is made for *unlawfully importing*, and exceeds 63 Gallons) ſhall be heard and examined, in a ſummary Way, by the Commiſſioners of Exciſe, or the major Part of them †; but if ſuch Seizure is made out of the Limits of the chief Office of Exciſe, *i. e.* out of the Bills of Mortality, then ſuch Seizures ſhall be examined and determined, in a ſummary Way, before any *two* Juſtices of the Peace reſiding near to the Place where ſuch Seizure was made; who are impowered to ſummon the Party in whoſe Cuſtody the Goods were found; and upon the Appearance or Default of the Party to proceed to give Judgment for the Condemnation of ſuch Goods, together with the Caſk and other Veſſels in which they are contained; and ſuch Judgments are declared to be valid

* See *Page* 186. † See *Page* 296.

valid and final, and not liable to any Appeal, or Writ of *Certiorari*. AND in all Caſes where ſuch Brandy, Arrack, Rum, Spirits, or Strong Waters ſhall be ſeized as forfeited, (except as before excepted,) and no Perſon ſhall appear to the Officer who made the ſame within 20 Days next after ſuch Seizure, if ſuch Seizure was made within the Bills of Mortality, Notice ſhall be fixed up at the *Royal Exchange* of the Day, and Time of the Day, when the Commiſſioners will proceed to enquire into the Cauſe of the Seizure, and to the Condemnation of ſuch Brandy, Arrack, Rum, Spirits, or Strong Waters ſeized as aforeſaid, and of the Caſks and other Veſſels containing the ſame. AND if ſuch Seizure was made out of the Bills of Mortality, and no Claim is made within twenty Days, Notice ſhall then be given by Proclamation at the next Market-Town to the Place where the Seizure was made, upon the next Market-Day after the Expiration of the ſaid twenty Days, when and where the Juſtices of the Peace will proceed to hear the Cauſe of ſuch Seizure, and to the Condemnation of ſuch Goods as aforeſaid; and ſuch reſpective Judgments of the Commiſſioners of Exciſe, and Juſtices of the Peace, ſhall be good, valid, and effectual in Law, and final to all Intents and Purpoſes whatſoever, as if the Owner of ſuch Goods, or the Perſon or Perſons in whoſe Cuſtody they were found, had been ſummoned; and no Appeal or *Certiorari* ſhall be admitted of.

1721. THE next Year after, *viz.* *Anno* 1721, to clear all Doubts concerning the ſeizing of ſuch Brandy, Arrack, Rum, Spirits, and Strong Waters, as well *Britiſh* as *Foreign*, and alſo of ſuch *Foreign* Exciſeable Liquors as are declared to be forfeited, it was ordained, That the ſaid Liquors which have been, are, or hereafter ſhould be forfeited by Virtue of any Law then in being, or that ſhould be made, together with the Caſks, Bottles, or other Package containing the ſame, ſhall and may be ſeized by any Officer of the *Exciſe* or *Cuſtoms* reſpectively, or by any Perſon *duly authorized*, but by no other Perſon whatſoever. AND after the 25th of *March*, 1722, all Perſons reſiſting any Officer of the Exciſe or Cuſtoms in the due ſeizing of any Brandy, Arrack, Rum, Spirits, or Strong Waters, either *Britiſh* or Foreign, or any Foreign Exciſeable Liquor, or reſcuing, or cauſing to be reſcued the ſame, after it has been ſeized, or who ſhould endeavour at or after ſuch Seizure to ſtave, or deſtroy the Caſk, Veſſel, or Bottle containing the ſame, ſhould forfeit 40*l.* for every ſuch Offence. And if any one for having done his Duty in relation to the Premiſſes is moleſted, he may plead the general Iſſue, and give the ſpecial Matter in Evidence, and he ſhall recover treble Coſts.

1724. ABOUT three Years after, *Anno* 1724, it was ordained, That after the 24th of *June*, 1725, no Brandy, Arrack, Rum, Spirits, or Strong Waters, whether *Britiſh* or Foreign, ſhould be ſold or expoſed to ſale, but in an entered Place, upon pain of forfeiting the ſame, and the Caſks, Bottles, or other Veſſels containing the ſame, over and above the Penalty formerly impoſed of 40*s.* *per* Gallon *.

1730. SIX Years after, *viz.* *Anno* 1730, it was ordained, That no Cyder and Perry ſold to any Diſtiller, or Maker of Strong Waters to be uſed for diſtilling only, ſhould be chargeable with the Duty of 4*s.* *per* Hogſhead. EVERY Diſtiller receiving into his Cuſtody any Quantity of Cyder or Perry after the 24th of *June*, 1730, is enjoined to give 48 Hours Notice in writing to the Officer who ſurveys him, before he begins to put any Quantity whatſoever of the ſame in the Still, to be drawn

* See *Page* 185.

drawn into Low Wines or Spirits; and if he ſhall neglect or omit to give the Officer ſuch Notice, *or* if he ſhall diſpoſe of or make uſe of any Part of ſuch Cyder or Perry but in Diſtillation only, he ſhall forfeit 5 *l.* to be recovered and mitigated as other Fines and Penalties againſt any of the Laws of the Exciſe.

THREE Years after, *viz.* *Anno* 1733, it was ordained, That if any Perſon ſhould hawk, ſell, or expoſe to ſale, Brandy or Strong Waters, after the 24th of *June*, 1733, about the Streets in any Wheel-Barrow, *or* upon the Water in any Ship, Boat, or Veſſel, or in any other Manner whatſoever; *or* ſhould ſell, or expoſe to ſale on any Bulk, Shed, or Stall, or in any Place other than the Dwelling-Houſe of the Perſon ſo ſelling, ſuch Perſon ſhould forfeit 10 *l.* for every ſuch Offence, and Judgment may be given by any one or more Juſtices of the Peace in the Place or Places where the Offence ſhall be committed, upon the Confeſſion of the Offender, or upon the Oath of one or more creditable Witneſſes, in a ſummary Way within one Calendar Month after the Offence committed; one Half of the ſaid Forfeiture muſt be paid to the Informer, the other to the Poor of the Pariſh where the Offence has been committed; and for want of ſufficient Diſtreſs, or refuſal of Payment, the Offender muſt be ſent to the Houſe of Correction by the Juſtices for any Time not leſs than a Month, nor exceeding three Months. 1733.

THREE Years after, it being obſerved, that the conſtant and exceſſive Uſe of *Gin*, and *other Spirituous Liquors*, amongſt People of inferior Rank, was not only deſtructive of their Healths, but unfitted them for uſeful Labour, debauched their Morals, and excited them to all kinds of Vices; to remedy which Evils, it was ordained, That after the 29th of *September*, 1736, no Perſon by himſelf, or by any other Perſon employed by him, ſhould ſell or retail any Brandy, Rum, Arrack, Uſquebaugh, Geneva, Aqua Vitæ, or any other diſtilled Spirituous Liquors, or Strong Waters, unmixed or mixed with themſelves, or any other Ingredients, in any leſs Quantity than *two Gallons**, without taking out a Licence, at leaſt 10 Days before he offers to ſell or retail the ſame, and paying down 50*l.* for the ſaid Licence at the chief Office of Exciſe in *London*, if he intends to retail ſuch Liquors within the Limits of the Penny-Poſt; but if he intends to retail without the Limits of the Penny-Poſt, then at the next Office of Exciſe to the Place where the Perſon taking out ſuch Licence ſhall reſide; and 50*l.* muſt be paid on renewing the Licence every Year, 10 Days at leaſt before the Expiration of the old one; and any Perſon retailing as aforeſaid without ſuch Licence, and renewing the ſame every Year, ſhall forfeit 100*l.* for each Offence. AND a Duty of 20*s.* *per* Gallon, and ſo in Proportion for any greater or leſſer Quantities, was laid upon all ſuch Spirituous Liquors, by whatever Name or Names they were or may be called, which ſhould be found in the Poſſeſſion of any Retailer after the 29th of *September*, 1736, whether they were ſold by themſelves, or any other Perſon in truſt for them, and this over and above all other Duties charged or chargeable upon the ſame†: and all the Laws in force relating to the Exciſe upon Beer, Ale, and other Liquors, are to be applied for recovering, levying, and mitigating theſe Duties upon Spirituous Liquors. AND after the 29th of *September*, 1736, every Perſon who ſhall retail any Spirituous Liquors, by whatever Name they were or may be called, in any leſs Quantity than two Gallons, muſt make an Entry at the next Exciſe Office of all the Warehouſes or other Places uſed by him for the laying, keeping, 1736.

* Altered by *Page* 293, by *Pages* 292, 293, 294.

† See this 50 *l.* for *Licence*, and 20*s.* *per Gallon*, altered

ing, or retailing any of the ſaid Commodities, at leaſt 10 Days before he retails the ſame; and alſo of all the Spirituous Liquors that are therein at the Time of making ſuch Entry, *or* which at any Time after ſhall come into ſuch Warehouſes, or other Places, upon pain of forfeiting 20*l.* for every Warehouſe, or other Place made uſe of without ſuch Entry; and likewiſe 40*s.* for every Gallon of ſuch Liquor which ſhall be concealed, and not entered, together with all the Liquors and Caſks in which they are contained. AND for the more effectual ſecuring theſe Duties, no Spirituous Liquors by whatever Name or Names they are or may be called, ſhall be brought into any Warehouſe or other Place, after the ſaid 29th Day of *September*, 1736, without firſt giving Notice to the Exciſe Officer, and leaving with him an authentic Certificate, which muſt expreſs the Quantity and Quality thereof, the Name of the Seller, and at what Place the Duties were paid, *or* the ſaid Liquors condemned, *or* of whoſe Stock the ſame was a Part of, on pain of forfeiting 20*l.* together with the Liquors and the Caſks in which they are contained. AND if any Retailer, after the ſaid 29th Day of *September*, 1736, ſhall increaſe ſuch Spirituous Liquors after an Account has been taken of them by the Officer, by the Addition of Water or any other Liquors, he ſhall forfeit 40*s.* for every Gallon of ſuch Spirits and Water, or other Liquors mixed as aforeſaid; which Liquors ſhall be ſeized by the Officers for his Majeſty's Uſe. THE Officers for theſe Duties by Day, or by Night, (but if in the Night-time, in the Preſence of a Conſtable;) and Oath being firſt made by ſuch Officer, or other Perſon, before a Juſtice in or near ſuch Place, of his ſuſpecting a Concealment of ſuch Spirituous Liquors, may enter into any Warehouſe, Storehouſe, Shop, Cellar, Vault, Room, or other Place uſed by ſuch Retailers, and gauge the Liquors there found; and if any ſuch Retailer ſhall refuſe or hinder the Officer in the Diſcharge of his Duty, he ſhall forfeit 50*l.* for every Offence. AND ſince it had been found, that many Perſons who employ great Numbers of Journeymen, Workmen, Servants, Labourers, and other Artificers, have dealt in Spirituous Liquors, and retailed them at exceſſive Prices to thoſe that work under them, it was ordained, That after the ſaid 29th Day of *September*, 1736, no ſuch Licences ſhould be granted but to ſuch Perſons only who keep public Victualling-houſes, Inns, Coffee-houſes, Ale-houſes, or Brandy-ſhops, and uſe no other Trade whatſoever; and if ſuch Licences ſhould be granted to any other Perſons, they were declared void. AND if any Perſons ſhall pay any Part of their Journeymen, or other Perſons working under them, their Wages in Spirituous Liquors, they ſhall be deemed Retailers of Spirituous Liquors, and ſhall forfeit 20*l.* over and above all other Penalties; and any Journeyman, or Perſon, may recover his whole Wages, notwithſtanding ſuch Agreement, or any ſuch Liquors received in Part thereof. BUT Spirituous Liquors made uſe of by any Phyſicians, Apothecaries, Surgeons, or Chymiſts, for preparing or making up of Medicines for ſick, lame, or diſtempered Perſons only, are not liable to the ſaid Duties*. AND every Perſon who ſhall hawk, ſell, or expoſe to ſale ſuch Spirituous Liquors, by what Name or Names they were or may be called, in the Streets, Fields, Highways, or upon the Water, in any manner whatever, or in any other Place or Places but what are entered as aforeſaid, ſhall forfeit 10*l.* for every Offence; and ſuch Offenders may be convicted before any Juſtice of the Peace in whoſe Liberty ſuch Offence ſhall be committed, either by the Confeſſion of the Party, or by the Oath of one or more creditable Witneſſes; and the Offender not paying the Penalty of 10*l.* immediately, upon

* See *Page* 293.

upon Conviction, into the Hands of the Church Wardens and Overſeers of the Poor of the Pariſh where ſuch Offence ſhall be committed, he muſt be ſent to the Houſe of Correction * for two Months, or until he pays the ſame. AND the Money ariſing from the Conviction of any Perſon, (in caſe there be no Informer,) ſhall be wholly for the Uſe of the Poor of the Pariſh; but in caſe there ſhall be an Informer, one Half to go to him, the other to the Poor of the Pariſh wherein the Offence was committed. BUT no ſuch Licence for retailing Spirituous Liquors can enable any Perſon to ſell ſuch Liquors by retail, unleſs he is firſt licenſed by two Juſtices of the Peace of that Diviſion in which he lives, and for which Juſtices Licence, 2 *s.* 6 *d.* † ſhall be paid to their Clerk. *if he finds the Licence*, and no more. And if the Juſtice's Clerk, or the Clerk of the Peace, ſhall aſk or receive any other Fee whatſoever, they ſhall forfeit 5 *l.* AND if any Perſon ſelling Proviſions or other Things by retail, ſhall give away any Spirituous Liquors to Servants or Apprentices fetching Goods, Proviſions, or other Things from their Shops or Houſes, he ſhall be deemed a Retailer of Spirituous Liquors, and be liable to the Penalties and Forfeitures accordingly. AND for the preventing Perſons ſelling Beer, Ale, Cyder, or any Spirituous Liquors, by retail, without Licence, every Juſtice may ſummon any Exciſe Officer to give them an Account upon Oath, touching the Entry of any Spirituous Liquors, Beer, Ale, Cyder, or Perry made by Perſons ſuſpected to ſell them without a Licence, * and ſuch Entry ſhall be deemed a ſelling of ſuch Liquors to all Intents and Purpoſes, as if the ſame had been proved by the Oath of two Witneſſes, AND thoſe Perſons, who had exerciſed the Art or Buſineſs of Diſtillation for ſeven Years, or who were Apprentices to the ſame on the 25th of *March*, 1736, may follow any Trade in any City, Town, or Place, notwithſtanding any Law, Charter, Grant, or Cuſtom to the contrary; tho', I think, the Univerſity of *Oxford* lately ejected a Diſtiller who opened a Tavern there. BUT Aqua Vitæ retailed and conſumed in *Scotland*, and the Retailers thereof, are not obliged to take out ſuch Licences as are before directed.

THE next Year, *viz. Anno* 1737, it was declared, That for the removing ſuch Doubts as had aroſe, touching the recovering, levying, and mitigating the Penalties and Forfeitures impoſed by a Law made for laying a Duty upon the Retailers of Spirituous Liquors, and for licenſing the Retailers thereof, it was ordained, That all the Penalties and Forfeitures thereby impoſed might be ſued for, recovered, levied and mitigated, as any Penalty or Forfeiture may be ſued for, recovered, levied or mitigated, as directed by a Law made the 12th *Car.* II. except where other Methods are there directed. AND whereas ſeveral Perſons, who were deſirous of putting the Laws in Execution, had not the Encouragement, which they juſtly deſerved, where the Offenders were not able to pay the Penalty, but in lieu thereof were ſent to the Houſe of Correction, to remedy which, it was ordained, That after the 24th of *June*, 1737, it ſhould be lawful for the Commiſſioners of Exciſe to cauſe ſuch Rewards to be paid to the Perſons, who ſhould appear to them to be entitled thereto, out of any Money they, or their Officer belonging to them, ſhould have in their Hands, that had or ſhould ariſe on account of any Penalties or Forfeitures againſt the ſaid Law. AND the Money ſo paid ſhall be allowed in their Accounts, as ſo much Money paid to his Majeſty, and the Commiſſioners are to be diſcharged therefrom accordingly. AND each Offender, upon Conviction, and up- 1737.

* See *Page* 290. † See this enforced on *Page* 300.

on refuſal to pay the ſaid Penalty of 10 *l.* ſhall be committed to the Houſe of Correction; and before his or her Diſcharge therefrom, ſhall be ſtripped naked from the Middle upwards, and whipped until his or her Body be bloody *.

1738. THE next Year *Anno* 1738, it being found that, notwithſtanding the ſeveral Endeavours to reſtrain the pernicious Uſe of Spirituous Liquors, or Strong Waters, the drinking of them was ſtill too common, eſpecially among Perſons of low Rank: *And* the Perſons, who expoſed them to ſale, contrary to the Laws then in force, were moſtly Perſons of little or no Subſtance: *And* it having been experienced, that, to prevent the Diſcovery of Offenders, and by that Means to evade the Penalty to which they were ſubject, many Perſons clandeſtinely retailed the ſaid Liquors without a Licence, or in ſome Place or Places not allowed of by Law, and the Perſons ſelling the ſame were not ſeen, but were hid behind ſome Wainſcot, Curtain, Partition, or were otherwiſe concealed; to remedy which for the future, it was ordained, That after the 24th of *June* 1738, if any leſs Quantity than *two* Gallons † of Spirituous Liquors, or Strong Waters, mixed or unmixed, ſhould be be ſold, uttered, or delivered in any private or clandeſtine Manner, to any Perſon in any Houſe, Out-houſe, Stable, Barn, or Shed, or in any other Place, Part of, or belonging to any Houſe or Farm, the Occupier or Occupiers of ſuch Houſe, Farm, or Part of any Houſe or Farm, or other Place, where ſuch Spirituous Liquor ſhall be ſold, being privy or conſenting thereto, ſhould be deemed the Retailer, or Retailers of ſuch Spirituous Liquors, and ſhould forfeit 100 *l* for every ſuch Offence, to be recovered and applied as the Penalty for ſelling or retailing any Spirituous Liquors in a leſs Quantity than two Gallons, without taking out a Licence. THERE having been innumerable Inſtances of ſeveral lawleſs and diſorderly Perſons, who had aſſembled themſelves to reſcue Offenders, and to abuſe thoſe concerned in bringing them to Juſtice, and who had aſſaulted and almoſt murdered ſeveral Officers, and other Perſons, who either had given, or were about to give Informations againſt ſuch Offenders; to prevent ſuch Practices for the future, it was ordained, That if any Perſons, to the Number of *Five or more*, ſhould, in a tumultuous and riotous Manner, aſſemble to reſcue any ſuch Offender, *or* to aſſault, beat, or wound any Perſon who had given, or ſhould be about to give any Information or Evidence againſt, *or* had diſcovered or given Evidence againſt, *or* was about to diſcover, ſeize, or bring to Juſtice any Perſon offending againſt the Ordinance for the Year 1736, every Perſon or Perſons ſo aſſembling, and their Aiders and Abetters, being lawfully convicted thereof, ſhould be adjudged to be guilty of Felony, and ſhould be tranſported for ſeven Years. AND it was further ordained, That if any Action ſhould be brought by any Perſon, in any inferior Court, againſt any Juſtice, or other Perſon employed in the Execution of this, or the Ordinances of the Years 1736, or 1737, the Defendant in ſuch Action, upon making Affidavit, that he intends to inſiſt in his Defence to ſuch Action, to remove ſuch Action or Suit into any of the Courts at *Weſtminſter*, provided the Writ for removing it be delivered to the proper Officer of the ſaid inferior Court before Iſſue joined in the ſaid Action, ſuch Defendant may plead the general Iſſue, *&c.* and ſhall recover treble Coſts. IT having been experienced, that the ſummoning Offenders gives them an Opportunity to abſcond from Juſtice, the Generality of them being Perſons of little or no Subſtance, and ſeldom have any ſettled Habitation; it

* See *Page* 289. † See *Pages* 292, 293.

it was therefore ordained, That for the future one or more Juſtices of the Peace, upon Information made before him upon Oath againſt any Perſon for hawking, ſelling, or expoſing to ſale any Spirituous Liquors, or Strong Waters contrary to Law, ſhould iſſue his Warrant under his Hand and Seal, directed to any miniſterial Officer of the Peace, for the bringing ſuch Offender before ſome Juſtice for the County or Place where the Offence was committed, that the Offender may be dealt with according to Law. AND becauſe a Conſtable or other Peace-Officer is not always at hand to apprehend the Offender, he often eſcapes unpuniſhed; to prevent which for the future, it was ordained, That it ſhould be lawful for any Perſon or Perſons whatſoever, to ſeize and detain any Perſon or Perſons who ſhall hawk, ſell, or expoſe to ſale any Brandy, Spirituous Liquors, or Strong Waters about the Streets, Highways, or Fields, in any Wheel-barrow, or Baſket, or upon the Water, in any Ship, Boat, or Veſſel, or in any other Manner whatſoever, or that ſhall ſell, or expoſe the ſame to ſale on any Bulk or Stall, or in any Shed or Place prohibited by Law, for ſuch reaſonable Time as he may give Notice to the Conſtable, Headborough, Tything-man, Church-Wardens, or Overſeers of the Poor, or ſome other Peace or Pariſh Officer or Officers, who are required to carry ſuch Perſon before one Juſtice of the Peace, for the County or Place where ſuch Offence was committed; and the Juſtice is required to proceed to the Examination of ſuch Offender, in the ſame Manner as if he had been brought before him by a Conſtable, or any other Peace-Officer; and if ſuch Perſon ſhall be convicted of the Offence, he is liable to the ſame Penalties, and the ſame corporal Puniſhment as Offenders againſt the Ordinances of the Year 1736 and 1737. AND all ſuch Forfeitures, which from Time to Time are paid to any Church-Wardens, or Overſeers of the Poor, muſt be applied and accounted for by them in the ſame Manner as other Monies raiſed and received on the Poor's Rates. IT appearing that ſeveral Conſtables, and other Peace-Officers, having refuſed or neglected to be aſſiſting in the Execution of the ſaid Ordinances, although thereunto required; it was ordained, That if any Conſtable, or other Peace Officer whatſoever, after the 24th of *June*, 1738, ſhould refuſe or neglect upon due notice or Requeſt, or upon their own View, to be aiding and aſſiſting in the Execution of the Premiſſes, or of the Ordinances, of the Years 1736 and 1737, or any or either of them; and being convicted thereof before any Juſtice of the Peace of the County or Place where ſuch Offence ſhould be committed, upon the Oath of one or more creditable Witneſſes, ſhall forfeit 20 *l.* for every ſuch Offence, to be levied by Diſtreſs; one Half whereof ſhall go to the Poor of the Pariſh where ſuch Offence ſhall be committed, and the other Half to the Informer, who may ſue for the ſame. AND no Diſtiller, or other Dealers in Spirituous Liquors, or Strong Waters whatſoever, whilſt he exerciſes ſuch Buſineſs, may act as a Juſtice of the Peace in any Matter or Thing whatſoever relating to the Premiſſes *. And all Penalties and Forfeitures then impoſed, are to be ſued for, levied, and mitigated, as in like Caſes is directed by the Exciſe Laws, or by Action of Debt, Bill, Plaint, or Information, in any of the Courts of Record at *Weſtminſter*, or the Exchequer Courts in *Scotland*; and ſuch Forfeitures and Penalties not otherwiſe directed to be diſpoſed of, are to be diſtributed one Half to the King, and the other Half to the Informer.

* See *Page* 299.

ABOUT *Five* Years after (the Endeavours of the Legiſlature to have reſtrained the exceſſive drinking of Spirituous Liquors having proved ineffectual) it was ordained, *That after* the 25th of *March* 1743, the Duty of 20 *s.* *a Gallon* laid on all Spirituous Liquors in the Poſſeſſion of any Retailer, and the 50 *l.* to be paid yearly for a Licence (as on *Page* 287) ſhould ceaſe; and that inſtead thereof, there ſhould be paid by the Diſtillers or Makers thereof (over and above all Duties, Charges, and Impoſitions already ſet, rated, and impoſed, the ſeveral Rates and Duties of Exciſe hereafter mentioned *) *Low Wines* or *Spirits* of the *firſt Extraction*, made or drawn *from any foreign or imported Materials, or any Mixture therewith*, for every Gallon *Six Pence*. *Spirits* made in *Great-Britain*, of any Kind of Wine or Cyder *imported*, for every Gallon, *Six Pence*. *Low Wines*, or *Spirits* of the *firſt Extraction*, made or drawn only from *any Sort of Drink or Waſh, brewed or made from any Sort of Malt or Corn*, other than and *except Brewers Waſh and Tilts*, for every Gallon, *one Penny*. *Low Wines* or *Spirits* of the *firſt Extraction*, made or drawn *from Brewers Waſh or Tilts, or any Mixture therewith*, for every Gallon, *one Penny*. *Low Wines* or *Spirits* of *the firſt Extraction* made or drawn from *any other Sort or Kind of* Engliſh *Materials, or any Mixture* therewith, for every Gallon, *three Half Pence*. *Strong Waters*, or *Aqua Vitæ*, made for Sale *of any other Materials*, for every Gallon, *Three Pence*. AND that no Perſon ſhould preſume to retail any Arrack, Rum, Brandy, Geneva, Aqua Vitæ, Uſquebaugh, or any other diſtilled Spirituous Liquors or Strong Waters, unmixed or mixed with themſelves, or any other Ingredients, (by whatſoever Name or Names they are or may be publickly or privately called) without taking out a Licence Ten Days before they preſume to retail any of the ſaid Liquors, and for which Licence 20 *s.* is to be paid to the Commiſſioners, or thoſe they ſhall appoint to receive it.

1743.

Licences, within the Bills of Mortality, to be granted under the Hands and Seals of *two* or *more* of the Commiſſioners of Exciſe; but in any other Place, under the Hands and Seals of the ſeveral Collectors and Supervifors, in their ſeveral Diſtricts. And every Perſon that has taken out ſuch Licence, is to renew his Licence, and pay 20 *s. yearly*; and this muſt be done at leaſt Ten Days before the Expiration of the former Licence. And any Perſon preſuming to ſell any of the aforeſaid Liquors, without taking out and renewing ſuch Licence, forfeits 10 *l.* for every Offence, one Half to the King, and one Half to the † Informer: [To be ſued for, levied, recovered, or mitigated, by ſuch Ways, Means, and Methods, as any Fine, Penalty, or Forfeiture is or may be recovered or mitigated by any of the Exciſe-Laws, or by Action of Debt, Bill, Plaint, or Information in any of the Courts of *Weſtminſter*, and the Defendant to have Treble Coſts,] which if they refuſe or neglect to pay, when demanded, they are to be ſent to the Houſe of Correction, and kept to hard Labour for Two Months ‡. BUT if ſuch Licence for ſelling any Spirituous Liquors or Strong Waters by Retail is granted to any who do not keep an *Inn, Ale-houſe, Victualling-houſe, Coffee-houſe*, or *Tavern* ‖, it is void. And when it is granted to *thoſe Traders*, it cannot protect them in the Retailing Spirituous Liquors or Strong Waters, unleſs they are firſt licenced by *two or more* Juſtices of the Peace to ſell Ale or Spirituous Liquors. AND no Perſon is to be deemed to be a *Retailer* of Spirituous Liquors, unleſs he retails

* See *Page* 294. † See *Page* 294. ‡ See this explained on *Page* 293. ‖ See this explained on *Pages* 293, 294.

tails the ſame to be drank or conſumed in his Warehouſe, Store-houſe, Shop, Cellar, or other Place; *or* unleſs he ſends the ſame abroad out of ſuch Places *in leſs* Quantities than a PINT*. BUT the uſing of Spirituous Liquors in preparing or making up Medicines † for ſuch as are ſick, lame, or diſtempered, is not to be deemed *retailing*; nor in *Scotland* are the Makers or Retailers of Spirits diſtilled from *malted Corn*, (commonly called Aqua Vitæ) either obliged to take out theſe Licenſes, or to pay any farther Duties.

THE next Year (viz. 1744) the Legiſlature found it neceſſary to explain the Power, given to Juſtices by the Ordinance of 1743 concerning the Penalties and Impriſonments for retailing Spirituous Liquors, without a Licence, and accordingly did then ordain that all the ſaid Penalties and Forfeitures, as well as all the Penalties by this preſent Ordinance impoſed, might be lawfully ſued for, recovered, levied, and mitigated by ſuch Ways, Means, and Methods, as any Penalty or Forfeiture is, or might be ſued for, recovered, levied, or mitigated by any Law, or Laws of Exciſe. AND, that it ſhould, and might be lawful for any ſuch Juſtices of the Peace, before whom ſuch Offender ſhould be convicted, if they ſhould judge it moſt proper, inſtead of levying the Penalty, to commit ſuch Offender to the Houſe of Correction, to be kept to hard Labour for Two Months; and that before his or her Diſcharge therefrom, ſuch Offender be ſtripped naked from the Middle upwards, and be whipped 'till his or her Body be bloody. AT the ſame Time it was likewiſe found neceſſary to make this Explanation of the Ordinance of 1743, concerning the granting of Licences, *viz.* That in any caſe where a Licence ſhould have been granted for retailing Spirituous Liquors, to any Perſon, who ſhould at the Time of granting ſuch Licence, keep a Tavern, Victualling-houſe, Inn, Coffee-houſe, or Ale-houſe, if ſuch Perſon ſo licenſed ſhould afterwards, during the Time of continuing ſuch Licence, exerciſe the Trade of a Diſtiller, Grocer, or Chandler, or keep a Brandy-Shop, or Shops, for Sale of any Spirituous Liquors, the Licenſe granted in every ſuch Caſe, ſhould be void; and that ſuch Perſons retailing ſuch Spirituous Liquors afterwards, ſhould forfeit Ten Pounds for every ſuch Offence, notwithſtanding ſuch Licenſe ſo obtained, as aforeſaid. IT was alſo ordained, that no Licence for retailing Spirituous Liquors ſhould authoriſe and impower any Perſon to whom the ſame might be granted, to ſell ſuch Spirituous Liquors in any other Place, except in ſuch Houſes or Places thereunto belonging, wherein, he, ſhe, or they ſhould inhabit and dwell, at the Time of ſuch Licence being granted them, and mentioned in it. AND it was alſo ordained, that from and after the Twenty-fourth Day of *June*, 1744, every Perſon or Perſons, who ſhould by him, or herſelf, or themſelves, or by his, her, or their Servant, or other Perſon, employed by him, her, or them, or for his, her, or their Benefit, retail any Spirituous Liquors, mixed or unmixed with any Ingredients, to be drank or conſumed in any Quantity whatſoever, in his, her, or their Houſes, Warehouſes, Shops, Cellars, Vaults, Sheds, or other Places, to him, her, or them belonging, or that ſhould retail or ſend the ſame abroad out of their ſaid Houſes, Ware-houſes, Srore-houſes, Shops, Cellars, Vaults, Rooms, Sheds, or other Places, in leſs Quantity than *two Gallons*, without firſt taking out a Licenſe for that Purpoſe, and renewing the ſame as directed by the Ordinance of 1743, is particularly directed, ſhall be deemed a Retailer of Spi- 1744.

* See *Pages* 290, 293. † See *Pages* 288, 298.

rituous Liquors, within the Meaning of the ſaid Ordinance, and as ſuch ſhould forfeit and loſe the Sum of 10 *l.* for every ſuch Offence. AND it was further ordained, that from and after the 24th of *June*, 1744, in all Caſes where the Perſons incurring the pecuniary Penalties inflicted by this preſent Ordinance, or by the Ordinance of 1743, are not able to pay the ſame, but ſhall be ſent to the Houſe of Correction, it ſhall be lawful for the Commiſſioners of Exciſe, to cauſe ſuch Rewards, not exceeding Five Pounds, to be paid to the ſeveral and reſpective Perſons, who ſhall appear to them to be entitled thereto, as Informers, out of any Money that ſhall be in their Hands, or of any Officer belonging to them, that hath ariſen, or ſhall ariſe by Virtue of any Penalties or Forfeitures, incurred by this Ordinance, or the Ordinance of 1743, and the Money ſo paid, ſhall be allowed in their Account, as ſo much Money paid to his Majeſty.

1746. ABOUT two Years after it was ordained, That from and after the 25th of *March*, 1746, that there ſhould be paid to his Majeſty, his Heirs and Succeſſors, by the Diſtillers or Makers thereof, for the ſeveral Spirituous Liquors, made, extracted, and manufactured in *Great-Britain*, hereafter mentioned * (over and above all Duties, Charges, and Impoſitions, formerly ſet, rated, and impoſed) theſe ſeveral Rates and Duties of Exciſe, *viz.* FOR all Low Wines, or Spirits of the firſt Extraction, made or drawn from any foreign or imported Materials, or any Mixture therewith, three Pence *per* Gallon. FOR all Spirits made in *Great-Britain*, of any Kind of Wine or Cyder imported, three Pence *per* Gallon. FOR every Gallon of Low Wines, or Spirits of the firſt Extraction, made or drawn only from any Sort of Drink or Waſh, brewed or made from any Sort of Malt or Corn, other than except Brewers Waſh or Tilts, to be paid by the Diſtillers or Makers thereof, one Half-Penny. FOR every Gallon of Low Wines, or Spirits of the firſt Extraction, made or drawn from Brewers Waſh or Tilts, or Mixture therewith, to be paid by the Diſtillers or Makers thereof, one Half-Penny. FOR every Gallon of Low Wines, or Spirits of the firſt Extraction, made or drawn from any other Sort or Kind or *Engliſh* Materials, or any Mixture therewith, to be paid by the Diſtillers or Makers thereof, three Farthings. FOR every Gallon of Strong Waters, or Aqua Vitæ, made for Sale of any other Materials, to be paid by the Diſtillers or Makers therof, three Half-pence. AND that upon Exportation, there ſhould be a Draw-back of the ſaid Duties. AND it was then declared that it was not the Intention of this Ordinance, that Low Wines or Spirits of the firſt Extraction from *Meloſſes only*, ſhould be chargeable with more Duty than 1 *s. per* Gallon; or that Spirits from ſuch Low Wines or Spirits of the firſt Extraction, made or drawn from Melaſſes only, ſhould be chargeable with more than 6 *d. per* Gallon. AND it was further ordained, That all the Powers, Authorities, *&c.* granted by any of the Laws now in Force relating to the Exciſe, ſhould be exerciſed, practiſed, applied, uſed, and put in Execution, in and for the managing, raiſing, levying, and mitigating theſe Duties; and that all Fines, Penalties, and Forfeitures hereby impoſed, ſhould be ſued for, levied, or mitigated by any of the Exciſe Laws, or by this Ordinance, or by Action of Debt, Bill, Plaint, or Information, in any of his Majeſty's Courts of Record at *Weſtminſter*, or in the Court of Exchequer in *Scotland*; and that one Moiety of every ſuch Fine, Penalty, or Forfeiture, ſhould be to the King, and the other Moiety to him or them, that ſhould diſcover, inform, or ſue for the ſame.

1747. THE Legiſlature having found that the Ordinances of the Year 1743, and of the Year 1744, had been found to be inconvenient, ſo far as relates to honeſt reputable Diſtillers, and that the Alteration thereof in that Particular would alſo tend to the Benefit of his Majeſty's Revenue. IT was ordained, that from and after the 24th of *June*, 1747, it ſhould and might be lawful for the Diſtillers within the Cities of *London* and *Weſtminſter*, Borough of *Southwark*, or Weekly Bills of Mortality, to take out Licences for retailing Brandy, Rum, Arrack, Uſquebaugh, Geneva, Aqua Vitæ, or any other Spirituous Liquors or ſtrong Waters, upon Payment of Five Pounds †, for every ſuch Licence,

* See *Pages* 292 and 296. † See *Pages* 287, 292, and 293.

Licence, which is to be renewed Yearly, upon the Payment of the like Sum of Five Pounds. AND theſe Licences are to be taken out in the ſame Manner, and ſubject to the like Penalties for retailing without Licence, as are directed and appointed by the Ordinance of 1743. BUT it is to be obſerved that Diſtillers in Partnerſhip are to have but one Licence: And that no ſuch Diſtiller or Diſtillers, ſhould be allowed to take out a Licence, unleſs, he, ſhe, or they, inhabiting within the City of *London*, are reſpectively rated, and do pay Church and Poors Rates, for the Value of 20 *l. per Annum*, and inhabiting in any other Parts within the Weekly Bills of Mortality, for the Value of 10 *l. per Annum*, in the Pariſh or Place, where he, ſhe, or they ſhall exerciſe the Trade of Diſtilling; and if any Licences ſhall be granted otherwiſe, or to any other Perſons than as here directed, the ſame are declared to be void to all Intents and Purpoſes. AND that no Diſtiller ſhould retail any Spirituous Liquors or Strong Waters in any other Place, than in his publick Shop only, and in no more than one Shop, by virtue of any one Licence, under pain of forfeiting, for every ſuch Offence, the Sum of Ten Pounds. THAT if any Diſtiller, or Diſtillers, licenced and authorized as above, ſhould at any Time after the Twenty-fourth Day of *June*, 1747, by himſelf, or by any other Perſon employed by him, wilfully ſuffer or permit any Perſon or Perſons to drink or tipple any ſuch Liquors, every Diſtiller or Diſtillers ſo offending, ſhall, for every ſuch Offence, forfeit, and pay the Sum of Ten Pounds; which ſhall be ſued for, levied, recovered, and mitigated by ſuch Ways, Means, and Methods, as any Fine, Penalty, or Forfeiture, is, or may be recovered or mitigated by any Law, or Laws of Exciſe; the one Moiety to the King, and the other to him, or them, who ſhall diſcover, inform, and proſecute for the ſame, AND that every Perſon who ſhould be found drinking or tippling in the Houſe, Shop, or other Place belonging to any Diſtiller, after the Twenty-fourth of *June*, 1747, ſhould, for every ſuch Offence, forfeit and pay the Sum of 20 *s.* to be recovered and levied by Way of Complaint, to be made within three Weeks after ſuch Offence ſhall be committed, before one or more of his Majeſty's Juſtices of the Peace, for and near the Place where the ſame ſhall happen, who is and are hereby required to ſummons before him, or them, the Party ſo offending; and in Default of Appearance, to iſſue a Warrant for apprehending ſuch Offender, and then proceed to examine ſuch Complaint upon Oath, and upon due Proof of ſuch Offences, by the Oath or Oaths of one or more credible Witneſs or Witneſſes, to convict the Offender accordingly; and in Caſe ſuch Forfeiture ſhall not be paid forthwith, that then the ſame ſhall be levied by Diſtreſs and Sale of ſuch Offender's Goods and Chattles, by Warrant or Warrants under the Hand and Seal of ſuch Juſtices or Juſtices, rendering the Overplus, if any, to ſuch Offender; and ſuch Forfeitures when levied, ſhall be applied to and for the Uſe of the Poor of the Pariſh, where ſuch Offence or Offences ſhall be committed; and that for want of ſufficient Diſtreſs, ſuch Offender ſhould be committed to the Houſe of Correction, for any Time not exceeding two Months, and not leſs than fourteen Days, there to be kept to hard Labour; and that no Perſon ſo to be convicted, ſhould be capable of receiving any Part of the Penalties or Forfeitures incurred by the Diſtiller or Diſtillers, who ſhould ſell or vend any ſuch Liquors ſo to be drank or tippled; any Thing herein contained to the contrary thereof in any wiſe notwithſtanding.

ABOUT ſix Years after, by an Ordinance [for granting an additional Duty on Spirituous Liquors, and upon Licences for retailing them; and for repealing the Ordinance of 1747; and for reſtraining the retailing of ſuch *Liquors*; and for allowing a Drawback upon their Exportation; and for ſubjecting the Pariſh of *St. Mary le Bon* to the Inſpection of the Head Officer of Exciſe] It was declared, that drinking Spirituous Liquors having of late Years increaſed, to the great Detriment of the common People, and this chiefly owing to the Number of thoſe who have obtained Licences under Pretence of being Diſtillers, and of thoſe who have preſumed to retail thoſe Liquors without Licence, contrary to Law: NOW for reſtraining ſuch Abuſes, and, that the Revenue may not be prejudiced; It was ordained, that after the Firſt Day of *July*, 1751, there ſhould be paid by the Diſtillers or Makers, (over and above all Duties, Charges, and Impoſitions already impoſed) as follows *: Low Wines, or Spirits of the firſt Extraction, from any ſort or Drink, or Waſh, made for Sale from any Sort of Malt or Corn, or from Brewer's Waſh, or Tilts, or any Mixture therewith, for every Gallon *Three Half-pence*. Strong Waters, or Aqua Vitæ, made for Sale of the Materials aforeſaid, or any of them, for every Gallon *Four Pence Halfpenny*. Low Wines, or Spirits of the firſt Extraction, from Cyder, or any Sort or Kind of *Britiſh* Materials, made for Sale, except thoſe beforementioned, or any Mixture therewith, for every Gallon *One Penny Three Farthings*. Spirits made for Sale from Cyder, or any Sort or Kind of *Britiſh* Materials, except thoſe beforementioned, for every Gallon *Three Pence Halfpenny*. AND it was alſo ordained, that the Duty of 5 *l.* payable for a Licence, by Virtue of the Ordinance of 1747, ſhould ceaſe and determine; and, in Lieu and Stead of the Duty of 5 *l.* there ſhould, after the Twenty-fifth of *March*, 1752, be laid an additional Duty of 20 *s. per Annum* for every Licence, which 20 *s.* is to be paid as directed by the Ordinance of 1747, and that the Penalties and Forfeitures impoſed by the ſaid Ordinance are to be ſtill in Force; and alſo the Powers of any other Ordinance, with Regard to the Duties, *&c. now* granted and impoſed. AND, whereas it may be doubted whether the Penalty of 10 *l.* † impoſed by the Ordinance of 1743, could be recovered within the Limits of the Head Office of Exciſe in *London* before a Juſtice, it was declared, that any Perſon retailing without a Licence, within the Limits of the ſaid Head Office, may be convicted before any Juſtice of the Peace for the City, County, or Liberty where the Offence ſhould be committed, as well as before the Commiſſioners of Exciſe; but neither the Juſtices or Commiſſioners ſhould in any Caſe mitigate the Penalty to leſs than 5 *l.* NO Perſon to be licenced, in the Limits of the Head Office, but ſuch as are rated to the Pariſh Rates for 10 *l.* a Year; nor in any other Part of the Kingdom (where there are Rates to Church and Poor) but to ſuch as are aſſeſſed and pay to Church and Poor, and for no longer a Time than the Perſon ſo licenced ſhould be qualified as aforeſaid: AND any Perſon not authorized by Law retailing Spirituous Liquors, for the *firſt* Offence to be ſubject not only to the Penalties now in being, but all ſuch Liquors that ſhall be then, or at any Time or Times within *ſix Calendar Months* after Conviction, be found in the Cuſtody of ſuch Offender, or in the Houſe, Lodgings, Shop, or Ware-houſe where ſuch Offence ſhould be committed, or any Court, Yard, Ground, or Place occupied therewith, whether then in the Occupation of ſuch Offender or not, or in the Occupation of any other Perſon whom-

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* See *Pages* 292 and 294. † See *Page* 292.

whomſoever, ſhould and might be ſeized, by Warrant of the ſaid Commiſſioners, or of any Juſtice, within their reſpective Juriſdictions; and on finding the ſame it ſhould be ſtaved, or otherwiſe deſtroyed; for which Purpoſe, any Peace or Pariſh Officer, authoriſed by ſuch Warrant aforeſaid, ſhould have Power, at any Time within the Space of *ſix Months* after Conviction, to enter ſuch Places, and break open Doors, if not opened, on demand; and if any Perſon ſhould, after ſuch Conviction, offend a *ſecond* Time, it ſhould be lawful for the Commiſſioners, or Juſtices reſpectively, before whom ſuch Offender ſhould be convicted, as well to inflict the Penalties by any former Law, as alſo to commit ſuch Offender to the Houſe of Correction, to be kept to hard Labour, for any Time not exceeding *three Months*, and alſo (if they ſhould think fit) to order ſuch Offender to be whipt; and in Caſe any Perſon who ſhall have been convicted of ſuch ſubſequent Offence as aforeſaid, ſhould offend a *third* Time, it ſhould be deemed *Felony*; and the Offender being indicted and convicted thereof, ſhould ſuffer as in Caſes of Felony, and may, by the Juſtices at their General or Quarter Seſſions (who are impowered to hear and determine ſuch Felony) be ordered to be tranſported for any Time not exceeding *ſeven Years*. AND for the Diſcovery and Puniſhment of Offenders, it was ordained, that the Commiſſioners of Exciſe, and Juſtices of the Peace, in their reſpective Juriſdictions, or any one or more Juſtices, upon Oath made of any Offence committed againſt this, or any other Ordinance in Force, for regulating the retailing Spirituous Liquors, to grant their Warrant to any of the Peace-Officers, or other Pariſh-Officers of the Pariſh, or Place, to enter, and ſearch the Houſe, Lodgings, Shop, Warehouſes, Cellars, and other Places, where ſuch Offences ſhall have been ſworn to have been committed, or in the Occupation of the Perſon ſworn againſt, and the Perſons authoriſed by ſuch Warrant, may enter ſuch Houſes, Lodgings, Shops, Warehouſes, and other Places, and break open the Doors, in caſe they are not forthwith opened on demand, and ſearch for, and ſeize, all ſuch Spirituous Liquors as they ſhould there find, and detain the ſame till the Matter of the Offence ſhould be heard and determined; and if the Offender is convicted, the Liquors ſhall be forthwith ſtaved and deſtroyed, but if ſuch Perſon be not convicted, then the Liquors ſhall be reſtored. AND if any Diſtiller, or other Perſon, ſhould knowingly ſell or deliver, or cauſe to be ſold or delivered, by his Servants or others, directly or indirectly any Quantity of diſtilled Spirituous Liquors to be unlawfully retailed, or to any unlicenſed Retailer; ſuch Diſtiller, or other Perſon, ſhall forfeit 10 *l.* and treble the Value of all ſuch Liquor ſo ſold or delivered, one Half to the King, and one Half to ſuch Perſon as will ſue for the ſame; and if any Perſon guilty of retailing ſuch Liquor, ſhould diſcover the Diſtiller or other Perſon, who knowingly ſupplied him with ſuch Liquors, and ſhould proſecute the Diſtiller, or other Perſon for the ſame, without Fraud or wilful Delay, till he be convicted thereof, he ſhould not only be entitled to his ſaid Share of the Penalty, but ſhall be indemnified againſt all Penalties and Forfeitures incurred by him, before the Commencement of ſuch his Proſecution for ſelling Spirituous Liquors without a Licence. AND no Perſon ſhall be entitled to maintain any Cauſe, Action, or Suit to recover any Debt or Demand, on Account of ſuch Liquors, unleſs ſuch Debt ſhall have really, and *bonâ fide*, been contracted at one Time, to the amount of 20 *s.* or upwards; nor ſhall any *Item*, in any Account or Demand, for ſuch Liquors be allowed, where the Liquors delivered at one Time, ſhould not amount to 20 *s.* at the leaſt,

without Fraud or Covin; and where no Part of the Liquor ſo ſold, ſhall have been returned or agreed to be returned directly or indirectly. AND in Caſe any Retailer, with or without a Licence, ſhould take any Pledge by Way of Security, for the Payment for ſuch Liquors, he ſhould forfeit 40 *s.* for every Offence, to be levied by Warrant of one Juſtice, where the Offence was committed, one Half to the King, and the other Half to the Informer; and the Perſon to whom ſuch Pledge ſhall belong, ſhould have the ſame Remedy, for the Recovery of it, or the Value thereof, as if it had never been pledged. AND it was alſo ordained, That no Licence ſhould be granted for retailing Spirituous Liquors within Gaols, Houſes of Correction, Work-houſes, or Houſes for the Entertainment of Pariſh-Poor; and if any Gaoler, Keeper, Maſter, or any Officer, ſell, uſe, lend, or give away, or knowingly ſuffer any ſuch Liquors to be ſold, uſed, lent, or given away, or brought into any ſuch Places (except ſuch as ſhall be medicinally * preſcribed) he ſhall forfeit 100 *l.* Half to the King, and Half to the Informer; and being a *ſecond Time* convicted of the like Offence, it ſhould be deemed a Forfeiture of his Office. AND Juſtices upon Information, that ſuch Liquors are kept and diſpoſed of in ſuch Place, may enter and ſearch, or impower a Conſtable ſo to do, and ſeize and ſtave the ſame. AND Perſons carrying or attempting, or endeavouring to carry or bring ſuch Liquors into ſuch Houſes, may be taken before a Juſtice, and, on Conviction, be committed for *three* Months, or pay a Sum not exceeding 20 *l.* nor leſs than 10 *l.* Half to the Poor, and Half to the Informer. AND every Gaoler, Keeper, *&c.* is always to keep hung up a fair Copy of the three Clauſes of the Act of Parliament, in the moſt publick Place of ſuch Goal, Priſon, *&c.* AND Juſtices may enter and demand a Sight thereof, and if the ſame is not fair and legible, he may convict the Gaoler, Keeper, *&c.* in the Penalty of 40 *s.* Half to the Informer, and Half to the Poor of ſuch Gaol, Priſon, *&c.* AND Juſtices are monthly to tranſmit to the Clerk of the Peace a Certificate of the Perſons convicted for Offences againſt this, or any other Ordinance relating to Spirituous Liquors, or licenſing the Retailers thereof; who is required to keep and enter the Certificate amongſt the publick Records, and ſuch Certificates are to be Evidence upon any Information relating to Spirituous Liquors.

To ſupply certain Defects in the Laws then in being, and alſo to prevent certain Frauds for the future, it was ordained, That after the firſt Day of *July* 1731, every Diſtiller or Maker of Low Wines, or Spirits, for Sale or Exportation, ſhould within ten Days after the ſaid firſt Day of *July* 1751, and all Perſons, who ſhould after the ſaid firſt Day of *July* 1751, become Diſtilliers, or Makers of Low-Wines, or Spirits, for Sale, or Exportation, ſhould ten Days before they diſtil, or make any Spirituous Liquors, make a true and particular Entry in Writing, of all and every Still, Copper, Tun, Waſhback, Caſk, or other Veſſel, which he ſhould make uſe of for the brewing, diſtilling, working, making, laying, or keeping any Worts, Waſh, Low Wines, Spirits, or Strong Waters; and, alſo of the Caſks or Veſſels ſuch Diſtiller ſhould make uſe of, for brewing, holding, or keeping of the *After-runnings* or *Feints*, from the ſecond Extraction, which ſhould from Time to Time be drawn from every ſuch Still, (which ſaid laſt mentioned Caſks or Veſſels are not at any one Time to exceed *two* in Number) and alſo of all ſuch *new* Veſſels, as ſuch Diſtillers ſhould make uſe of, for the Purpoſes aforeſaid, on Pain of forfeiting for every ſuch Still, Copper, Tun, Waſhback, Caſk,

* See *Pages* 288, 293.

Caſk, or other Veſſel beforementioned, which ſhould be made uſe of, and not entered, the Sum of 50 *l.* AND every ſuch Diſtiller is required to ſhew the Gauger who ſurveys him every ſuch Still, Copper, or Veſſel, ſo entered; and the Officer is required to mark them with a particular diſtinct and durable Mark; and every Still, Copper, Tun, or Veſſel, which ſhall be uſed by any Diſtiller for any of the Purpoſes aforeſaid, without being ſo ſhewn, or marked, ſhall be deemed a Veſſel, or Utenſil, of which no Entry has been made. AND if any Perſon after ſuch Utenſil has been marked by ſuch Officer, ſhould rub out, or deface any ſuch Mark, ſo fixed upon ſuch Still, Copper, Tun, or Veſſel, he ſhould forfeit 20 *l.* for every Offence. AND in order to prevent Frauds, by having proper Proofs to lay before the Courts, where Offences againſt the Laws relating to theſe Duties, ſhall be heard and determined, it was ordained, That after the Firſt Day of *July* 1751, it ſhould be lawful for any Gauger, or Officer, at any Time, to take a *Sample* of ſuch Low Wines, or Spirits, and of Feints and Spent-Waſh, paying for ſuch Spirits, or Low Wines, after the Rate of 10*s.* a *Gallon*, and for the Feints and Spent-Waſh, after the Rate of 1*s per Gallon*; and, in Caſe any ſuch Diſtiller, or any of his Workmen, or Servants, ſhould refuſe to permit the Gauger, or Officer, to take ſuch Samples, or ſhould any Ways hinder or obſtruct him in taking ſuch Samples, he ſhall forfeit 50 *l.* for every ſuch Offence. AND it was alſo farther ordained, that, after the firſt Day of *July* 1751, every Diſtiller within the Bills of Mortality, ſhould, *twenty-four Hours* at leaſt, and in other Parts of *Great-Britain*, *forty-eight Hours* at leaſt, before he receives any Quantity of Wine, Cyder, Sugar-Water, or any Kind of fermented Waſh whatſoever into his Cuſtody, give Notice to the Gauger, or Officer, who ſurveys his Workhouſe of the Quantity and Species thereof, and the Time when he intends to receive the ſame into his Cuſtody, on Forfeiture of 50 *l.* for every Offence, in not giving ſuch Notice as aforeſaid. AND it was at the ſame Time ordained, that there ſhould be a Draw-back of the Duties upon Exportation. AND that *Aqua Vitæ*, made in *Scotland*, ſhould be exempted from theſe new Duties, and the Retailers thereof from taking out Licenſes. AND that, after the firſt Day of *July* 1751, no Perſon whatſoever, being a common Brewer of Ale or Beer, or Inn-keeper, Diſtiller, or other Seller or Dealer in any Kind of Spirituous Liquors; or who is intereſted in any of the ſaid Trades or Buſineſſes, ſhould, during ſuch Time, be capable, or have any Power to act or be directly or indirectly concerned in acting as a Juſtice of the Peace *, in any Matter or Thing in any wiſe relating to Diſtillers, or to the Duties impoſed upon Low Wines, Spirits, or Strong Waters, or to the granting Licences to the Retailers thereof. AND in order to put an End to ſome Doubts concerning the Ordinances of the Years 1743 and 1744 (relating to the ſelling in leſs Quantities than *two Gallons*) it was ordained, that all and every the Powers, Penalties, Puniſhments, Forfeitures, *&c.* made ſince the Year 1733, relating to the ſelling of Spirituous Liquors without Licence, (except the Penalty of 100 *l.* impoſed by the Ordinance of 1736) may for the Future, and, from the Commencement of the Ordinance of 1744, might have been lawfully exerciſed, inflicted, levied, and recovered, in Regard to every Perſon that had, or ſhould offend againſt the Ordinances of 1743 and 1744, or this preſent Ordinance, or any of them, in like Manner as they might have been, in relation to Perſons offending againſt the ſaid ſeveral

* See *Page* 291.

veral and reſpective Ordinances, or any of them, made ſince the Year 1733. AND, whereas it was ordained in the Year 1736, that *two Shillings and Six-pence, and no more** ſhould be paid to the Juſtice's Clerk for a Licence, and no Fee, or other Reward, to the Clerk of the Peace, for entering the ſame, on Forfeiture of 5 *l.* AND, whereas the Ordinance of 1736, being in Part repealed, it has been doubted, if what related to the Fee to be taken for Licences, was not repealed alſo. And, whereas no particular Method is preſcribed in the Ordinance of 1736, for the Recovery of the Penalty of 5*l.* NOW to put an End to all Doubts, it was ordained, that the Clauſe for reſtraining Juſtices Clerks for aſking, or receiving more than 2 *s.* 6 *d.* for each Licence, is now, and ſhould be, and remain in full Force; and that the Penalties and Forfeitures may be ſued for, levied, and recovered, by Action of Debt, Bill, Plaint, or Information, in any Court of Record at *Weſtminſter*, or by Indictment at the Aſſizes, or at the General or Quarter Seſſions of the Peace, for the Uſe of the Perſon, who ſhould ſue for the ſame. And that no Eſſoin, Wager of Law, or more than one Imparlance, ſhould be allowed. AND it was ordained, that after the firſt Day of *July* 1751, the Pariſh of *St. Mary le Bon*, in the County of *Middleſex*, ſhould be deemed and taken to be under the immediate Care, Inſpection, and Management of the Head Office of Exciſe, in *London*, any Law, Cuſtom, or Uſage to the contrary notwithſtanding. AND it was alſo ordained, that if any Perſons, to the Number of *five or more*, ſhould, after the firſt Day of *July* 1751, aſſemble themſelves to reſcue any Offenders, againſt any of the Laws relating to Spirituous Liquors, or for licenſing the Retailers thereof, or to aſſault, beat, or wound any Perſon, who has given, or ſhall be about to give any Information, or ſhall have diſcovered, or given Evidence, or ſhould ſeize, and bring to Juſtice, any Perſon offending againſt any of thoſe Laws, or forceably to oppoſe the Execution of this Ordinance, all ſuch Perſons, and their Aiders. and Abettors, being thereof convicted, they ſhould be adjudged guilty of *Felony*, and be tranſported for *ſeven* Years. And that all the Fines, Penalties, and Forfeitures, impoſed by this long Ordinance of 1751, ſhould be ſued for, levied, recovered, or mitigated by ſuch Ways and Methods, as any Fine or Forfeiture was, or might be, recovered or mitigated by any of the Exciſe Laws (not otherwiſe directed by this Ordinance) or by Action of Debt, Bill, Plaint, or Information, in any of the Courts of Record, at *Weſtminſter*, or in the *Exchequer-Court* in *Scotland*; and that one Half of every ſuch Fine, Penalty, or Forfeiture, ſhould be to the King, and the other Half to him, or them, who ſhould diſcover, inform, or ſue for the ſame. AND if any Perſon ſhould be ſued, for any Thing done done in Purſuance of this Ordinance, it muſt be in *three Months*, next after the Offence is committed; and ſuch Perſon may plead the general Iſſue, and is to have treble Coſts. And that all Perſons ſo ſued, or proſecuted, ſhould be intitled to all the Privileges and Benefits for their legal Defence, as are provided by the Ordinance of 1736. AND, after the Firſt of *July* 1751, where any Perſon ſhould be convicted of any Offence in retailing Spirituous Liquors, and the pecuniary Penalty inflicted for ſuch Offence, ſhould not be paid, and cannot be levied in *one Month*, from the Time of Conviction, the Commiſſioners of the Exciſe are to cauſe ſuch a Reward as they think fit, not exceeding 5 *l.* each, to be paid to the ſeveral and reſpective Perſons, who ſhall appear to them, to be entitled thereto as Informers, out of Monies in their Hands, ariſing by Forfeitures, and Penalties for the like Offences. The

* See *Page* 289.

The Uſe *and* Intention *of the following* TABLES.

	s.	*d.*	
The Table at	0	1	is for Candles, and Hops.
———	0	1¼	——Sheep and Lamb-ſkins *tawed*.
———	0	1½	——Soap, Sheep and Lamb, *&c. tanned*; Calf and Kid, *tawed*; Paper-Hangings.
———	0	2	——Starch, Roans *tanned*; Skins and Pieces *in Oil*.
———	0	2½	——Low Wines from malted Corn.
———	0	3	——Sheep, and Lamb *in Oil*; printed Linen and Stuffs.
———	0	3¾	——Low Wines from Cyder.
———	0	4	——Silk Handkerchiefs; Goats *tanned* with *Shumack*.
———	0	6	——Callicoes, Plate, Silver Wire; Buck and Doe, *tawed*; Hides, Deer, Goat, and Beaver *in Oil*; brown Paper *ordinary*; Spirits.
———	0	7½	——Spirits.
———	0	8	——Wax-Candles, Gilt-Wire, Calf-ſkins *in Oil*.
———	0	9	——Papers: Pot *ſecond*, Brown *Cap*, *whited* Brown.
———	0	11	——Mead or Metheglin; Cyder-Spirits.
———	1	0	——Printed Silks, Demy Paper *ſecond*; Slinks no Hair; Dog and Kid *tawed*; Low Wines from Melaſſes; Malt-Spirits.
———	1	1½	——Crown Paper *ſecond*, Fools Cap *ſecond*; this *doubled* ſerves for *fine* Demy.
———	1	3	——Low Wines from Foreign Wines and Spirits.
———	1	6	——Crown Paper *fine*, Fools Cap *fine*; Chocolate; Horſe Hides *tawed*; Parchment.
———	2	0	——Coffee; Beaver and Goat *tawed*.
———	3	0	——Hides, Slinks in Hair *tawed*; Vellom.
———	3	8	——Single Brandy, *&c.* from *Britiſh Plantations*.
———	4	8	——Single Brandy *foreign*.
———	6	8	——Double Brandy, *&c.* from *Britiſh Plantations*.
———	8	0	——Brandy, *&c.* from *Guernſey*, *Jerſey*, &c.
———	8	8	——Double Brandy *foreign*.

Example. What does the Duty of 531 *Ounces* of *Silver Plate* amount to at 6 *d. per Ounce?*

oz.		*l.*	*s.*	*d.*
500 is	———	12	10	0
30	———	0	15	0
1	———	0	0	6
Anſwer 531 at 6 *d.* comes to		13	5	6

☞ If the Officer has Occaſion for a larger Number than 1000, he may take it out at ſeveral Times, as in the *above* Example.

Caſh=

Pds, or Yds, or Gall.	At 1 d.			At 1 d. ¼				At 1 d. ½				At 2 d.			At 2 d. ½				At 3 d.			At 3 d. ¾				At 4 d.		
	l.	s.	d.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	l.	s.	d.	q.	l.	s.	d.	l.	s.	d.	q.	l.	s.	d.
&c. 1	0	0	1	0	0	1	1	0	0	1	2	0	0	2	0	0	2	½	0	0	3	0	0	3	¾	0	0	4
2	0	0	2	0	0	2	2	0	0	3	0	0	0	4	0	0	5	½	0	0	6	0	0	7	½	0	0	8
3	0	0	3	0	0	3	3	0	0	4	2	0	0	6	0	0	7	½	0	0	9	0	0	11	¼	0	1	0
4	0	0	4	0	0	5	0	0	0	6	0	0	0	8	0	0	10		0	1	0	0	1	3		0	1	4
5	0	0	5	0	0	6	1	0	0	7	2	0	0	10	0	1	0	½	0	1	3	0	1	6	¾	0	1	8
6	0	0	6	0	0	7	2	0	0	9	0	0	1	0	0	1	3		0	1	6	0	1	10	½	0	2	0
7	0	0	7	0	0	8	3	0	0	10	2	0	1	2	0	1	5	½	0	1	9	0	2	2	¼	0	2	4
8	0	0	8	0	0	10	0	0	1	0	0	0	1	4	0	1	8		0	2	0	0	2	6		0	2	8
9	0	0	9	0	0	11	1	0	1	1	2	0	1	6	0	1	10	½	0	2	3	0	2	9	¾	0	3	0
10	0	0	10	0	1	0	2	0	1	3	0	0	1	8	0	2	1		0	2	6	0	3	1	½	0	3	4
11	0	0	11	0	1	1	3	0	1	4	2	0	1	10	0	2	3	½	0	2	9	0	3	5	¼	0	3	8
12	0	1	0	0	1	3	0	0	1	6	0	0	2	0	0	2	6		0	3	0	0	3	9		0	4	0
13	0	1	1	0	1	4	1	0	1	7	2	0	2	2	0	2	8	½	0	3	3	0	4	0	¾	0	4	4
14	0	1	2	0	1	5	2	0	1	9	0	0	2	4	0	2	11		0	3	6	0	4	4	½	0	4	8
15	0	1	3	0	1	6	3	0	1	10	2	0	2	6	0	3	1	½	0	3	9	0	4	8	¼	0	5	0
16	0	1	4	0	1	8	0	0	2	0	0	0	2	8	0	3	4		0	4	0	0	5	0		0	5	4
17	0	1	5	0	1	9	1	0	2	1	2	0	2	10	0	3	6	½	0	4	3	0	5	3	¾	0	5	8
18	0	1	6	0	1	10	2	0	2	3	0	0	3	0	0	3	9		0	4	6	0	5	7	½	0	6	0
19	0	1	7	0	1	11	3	0	2	4	2	0	3	2	0	3	11	½	0	4	9	0	5	11	¼	0	6	4
20	0	1	8	0	2	1	0	0	2	6	0	0	3	4	0	4	2		0	5	0	0	6	3		0	6	8
21	0	1	9	0	2	2	1	0	2	7	2	0	3	6	0	4	4	½	0	5	3	0	6	6	¾	0	7	0
22	0	1	10	0	2	3	2	0	2	9	0	0	3	8	0	4	7		0	5	6	0	6	10	½	0	7	4
23	0	1	11	0	2	4	3	0	2	10	2	0	3	10	0	4	9	½	0	5	9	0	7	2	¼	0	7	8
24	0	2	0	0	2	6	0	0	3	0	0	0	4	0	0	5	0		0	6	0	0	7	6		0	8	0
25	0	2	1	0	2	7	1	0	3	1	2	0	4	2	0	5	2	½	0	6	3	0	7	9	¾	0	8	4
26	0	2	2	0	2	8	2	0	3	3	0	0	4	4	0	5	5		0	6	6	0	8	1	¼	0	8	8
27	0	2	3	0	2	9	3	0	3	4	2	0	4	6	0	5	7	½	0	6	9	0	8	5	¼	0	9	0
28	0	2	4	0	2	11	0	0	3	6	0	0	4	8	0	5	10		0	7	0	0	8	9		0	9	4
29	0	2	5	0	3	0	1	0	3	7	2	0	4	10	0	6	0	½	0	7	3	0	9	0	¾	0	9	8
30	0	2	6	0	3	1	2	0	3	9	0	0	5	0	0	6	3		0	7	6	0	9	4	½	0	10	0
40	0	3	4	0	4	2	0	0	5	0	0	0	6	8	0	8	4		0	10	0	0	12	6		0	13	4
50	0	4	2	0	5	2	2	0	6	3	0	0	8	4	0	10	5		0	12	6	0	15	7	½	0	16	8
60	0	5	0	0	6	3	0	0	7	6	0	0	10	0	0	12	6		0	15	0	0	18	9		1	0	0
70	0	5	10	0	7	3	2	0	8	9	0	0	11	8	0	14	7		0	17	6	1	1	10	½	1	3	4
80	0	6	8	0	8	4	0	0	10	0	0	0	13	4	0	16	8		1	0	0	1	5	0		1	6	8
90	0	7	6	0	9	4	2	0	11	3	0	0	15	0	0	18	9		1	2	6	1	8	1	½	1	10	0
100	0	8	4	0	10	5	0	0	12	6	0	0	16	8	1	0	10		1	5	0	1	11	3		1	13	4
200	0	16	8	1	0	10	0	1	5	0	0	1	13	4	2	1	8		2	10	0	3	2	6		3	6	8
300	1	5	0	1	11	3	0	1	17	6	0	2	10	0	3	2	6		3	15	0	4	13	9		5	0	0
400	1	13	4	2	1	8	0	2	10	0	0	3	6	8	4	3	4		5	0	0	6	5	0		6	13	4
500	2	1	8	2	12	1	0	3	2	6	0	4	3	4	5	4	2		6	5	0	7	16	3		8	6	8
600	2	10	0	3	2	6	0	3	15	0	0	5	0	0	6	5	0		7	10	0	9	7	6		10	0	0
700	2	18	4	3	12	11	0	4	7	6	0	5	16	8	7	5	10		8	15	0	10	18	9		11	13	4
800	3	6	8	4	3	4	0	5	0	0	0	6	13	4	8	6	8		10	0	0	12	10	0		13	6	8
900	3	15	0	4	13	9	0	5	12	6	0	7	10	0	9	7	6		11	5	0	14	1	3		15	0	0
1000	4	3	4	5	4	2	0	6	5	0	0	8	6	8	10	8	4		12	10	0	15	12	6		16	13	4

Pds, or Yds, or Gall. &c.	At 6 d.		At 7 d. ½			At 8 d.		At 9 d.		At 11 d.			At 1 s.		At 1 s. 1 ½.			At 1 s. 3 d.		
	l.	s.	d.	l.	s.	d. q.	l.	s. d.	l.	s. d.	l.	s.	d.	l.	s. d.	l.	s.	d. q.	l.	s. d.
1	0	0	6	0	0	7½	0	0 8	0	0 9	0	0	11	0	1 0	0	1	1 2	0	1 3
2	0	1	0	0	1	3	0	1 4	0	1 6	0	1	10	0	2 0	0	2	3 0	0	2 6
3	0	1	6	0	1	10½	0	2 0	0	2 3	0	2	0	0	3 0	0	3	4 2	0	3 9
4	0	2	0	0	2	6	0	2 8	0	3 0	0	3	8	0	4 0	0	4	6 0	0	5 0
5	0	2	6	0	3	1½	0	3 4	0	3 9	0	4	7	0	5 0	0	5	7 2	0	6 3
6	0	3	0	0	3	9	0	4 0	0	4 6	0	5	6	0	6 0	0	6	9 0	0	7 6
7	0	3	6	0	4	4½	0	4 8	0	5 3	0	6	5	0	7 0	0	7	10 2	0	8 9
9	0	4	0	0	5	0	0	5 4	0	6 0	0	7	4	0	8 0	0	9	0 0	0	10 0
8	0	4	6	0	5	7½	0	6 0	0	6 9	0	8	3	0	9 0	0	10	1 2	0	11 3
10	0	5	0	0	6	3	0	6 8	0	7 6	0	9	2	0	10 0	0	11	3 0	0	12 6
11	0	5	6	0	6	10½	0	7 4	0	8 3	0	10	1	0	11 0	0	12	4 2	0	13 9
12	0	6	0	0	7	6	0	8 0	0	9 0	0	11	0	0	12 0	0	13	6 0	0	15 0
13	0	6	6	0	8	1½	0	8 8	0	9 9	0	11	11	0	13 0	0	14	7 2	0	16 3
14	0	7	0	0	8	9	0	9 4	0	10 6	0	12	10	0	14 0	0	15	9 0	0	17 6
15	0	7	6	0	9	4½	0	10 0	0	11 3	0	13	9	0	15 0	0	16	10 2	0	18 9
16	0	8	0	0	10	0	0	10 8	0	12 0	0	14	8	0	16 0	0	18	0 0	1	0 0
17	0	8	6	0	10	7½	0	11 4	0	12 9	0	15	7	0	17 0	0	19	1 2	1	1 3
18	0	9	0	0	11	3	0	12 0	0	13 6	0	16	6	0	18 0	1	0	3 0	1	2 6
19	0	9	6	0	11	10½	0	12 8	0	14 3	0	17	5	0	19 0	1	1	4 2	1	3 9
20	0	10	0	0	12	6	0	13 4	0	15 0	0	18	4	0	0 0	1	2	6 0	1	5 0
21	0	10	6	0	13	1½	0	14 0	0	15 9	0	19	3	1	1 0	1	3	7 2	1	6 3
22	0	11	0	0	13	9	0	14 8	0	16 6	1	0	2	1	2 0	1	4	9 0	1	7 6
23	0	11	6	0	14	4½	0	15 4	0	17 3	1	1	1	1	3 0	1	5	10 2	1	8 9
24	0	12	0	0	15	0	0	16 0	0	18 0	1	2	0	1	4 0	1	7	0 0	1	10 0
25	0	12	6	0	15	7½	0	16 8	0	18 9	1	2	11	1	5 0	1	8	1 2	1	11 3
26	0	13	0	0	16	3	0	17 4	0	19 6	1	3	10	1	6 0	1	9	3 0	1	12 6
27	0	13	6	0	16	10½	0	18 0	1	0 3	1	4	9	1	7 0	1	10	4 2	1	13 9
28	0	14	0	0	17	6	0	18 8	1	1 0	1	5	8	1	8 0	1	11	6 0	1	15 0
29	0	14	6	0	18	1½	0	19 4	1	1 9	1	6	7	1	9 0	1	12	7 2	1	16 3
30	0	15	0	0	18	9	1	0 0	1	2 6	1	7	6	1	10 0	1	13	9 0	1	17 6
40	1	0	0	1	5	0	1	6 8	1	10 0	1	16	8	2	0 0	2	5	0 0	2	10 0
50	1	5	0	1	11	3	1	13 4	1	17 6	2	5	10	2	10 0	2	16	3 0	3	2 6
60	1	10	0	1	17	6	2	0 0	2	5 0	2	15	0	3	0 0	3	7	6 0	3	15 0
70	1	15	0	2	3	9	2	6 8	2	12 6	3	4	2	3	10 0	3	18	9 0	4	7 6
80	2	0	0	2	10	0	2	13 4	3	0 0	3	13	4	4	0 0	4	10	0 0	5	0 0
90	2	5	0	2	16	3	3	0 0	3	7 6	4	2	6	4	10 0	5	1	3 0	5	12 6
100	2	10	0	3	2	6	3	6 8	3	15 0	4	11	8	5	0 0	5	12	6 0	6	5 0
200	5	0	0	6	5	0	6	13 4	7	10 0	9	3	4	10	0 0	11	5	0 0	12	10 0
300	7	10	0	9	7	6	10	0 0	11	5 0	13	15	0	15	0 0	16	17	6 0	18	15 0
400	10	0	0	12	10	0	13	6 8	15	0 0	18	6	8	10	0 0	22	10	0 0	25	0 0
500	12	10	0	15	12	6	16	13 4	18	15 0	22	18	4	25	0 0	28	2	6 0	31	5 0
600	15	0	0	18	15	0	20	0 0	22	10 0	27	10	0	30	0 0	33	15	0 0	37	10 0
700	17	10	0	21	17	6	23	6 8	26	5 0	32	1	8	35	0 0	39	7	6 0	43	15 0
800	20	0	0	25	0	0	26	13 4	30	0 0	36	13	4	40	0 0	45	0	0 0	50	0 0
900	22	10	0	28	2	6	30	0 0	33	15 0	41	5	0	45	0 0	50	12	6 0	56	5 0
1000	25	0	0	31	5	0	33	6 8	37	10 0	45	16	8	50	0 0	55	5	0 0	62	10 0

Pds, or Yds, or Gall.	At 1s.6d.			At 2s.			At 3s.			At 3s. 8d.			At 4s. 8d.			At 6s. 8d.			At 8s.			At 8s. 8d.		
	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.
&c. 1	0	1	6	0	2	0	0	3	0	0	3	8	0	4	8	0	6	8	0	8	0	0	8	8
2	0	3	0	0	4	0	0	6	0	0	7	4	0	9	4	0	13	4	0	16	0	0	17	4
3	0	4	6	0	6	0	0	9	0	0	11	0	0	14	0	1	0	0	1	4	0	1	6	0
4	0	6	0	0	8	0	0	12	0	0	14	8	0	18	8	1	6	8	1	12	0	1	14	8
5	0	7	6	0	10	0	0	15	0	0	18	4	1	3	4	1	13	4	2	0	0	2	3	4
6	0	9	0	0	12	0	0	18	0	1	2	0	1	8	0	2	0	0	2	8	0	2	12	0
7	0	10	6	0	14	0	1	1	0	1	5	8	1	12	8	2	6	8	2	16	0	3	0	8
8	0	12	0	0	16	0	1	4	0	1	9	4	1	17	4	2	13	4	3	4	0	3	9	4
9	0	13	6	0	18	0	1	7	0	1	13	0	2	2	0	3	0	0	3	12	0	3	18	0
10	0	15	0	1	0	0	1	10	0	1	16	8	2	6	8	3	6	8	4	0	0	4	6	8
11	0	16	6	1	2	0	1	13	0	2	0	4	2	11	4	3	13	4	4	8	0	4	15	4
12	0	18	0	1	4	0	1	16	0	2	4	0	2	16	0	4	0	0	4	16	0	5	4	0
13	0	19	6	1	6	0	1	19	0	2	7	8	3	0	8	4	6	8	5	4	0	5	12	8
14	1	1	0	1	8	0	2	2	0	2	11	4	3	5	4	4	13	4	5	12	0	6	1	4
15	1	2	6	1	10	0	2	5	0	2	15	0	3	10	0	5	0	0	6	0	0	6	10	0
16	1	4	0	1	12	0	2	8	0	2	18	8	3	14	8	5	6	8	6	8	0	6	18	8
17	1	5	6	1	14	0	2	11	0	3	2	4	3	19	4	5	13	4	6	16	0	7	7	4
18	1	7	0	1	16	0	2	14	0	3	6	0	4	4	0	6	0	0	7	4	0	7	16	0
19	1	8	6	1	18	0	2	17	0	3	9	8	4	8	8	6	6	8	7	12	0	8	4	8
20	1	10	0	2	0	0	3	0	0	3	13	4	4	13	4	6	13	4	8	0	0	8	13	4
21	1	11	6	2	2	0	3	3	0	3	17	0	4	18	0	7	0	0	8	8	0	9	2	0
22	1	13	0	2	4	0	3	6	0	4	0	8	5	2	8	7	6	8	8	16	0	9	10	8
23	1	14	6	2	6	0	3	9	0	4	4	4	5	7	4	7	13	4	9	4	0	9	19	4
24	1	16	0	2	8	0	3	12	0	4	8	0	5	12	0	8	0	0	9	12	0	10	8	0
25	1	17	6	2	10	0	3	15	0	4	11	8	5	16	8	8	6	8	10	0	0	10	16	8
26	1	19	0	2	12	0	3	18	0	4	15	4	6	1	4	8	13	4	10	8	0	11	5	4
27	2	0	6	2	14	0	4	1	0	4	19	0	6	6	0	9	0	0	10	16	0	11	14	0
28	2	2	0	2	16	0	4	4	0	5	2	8	6	10	8	9	6	8	11	4	0	12	2	8
29	2	3	6	2	18	0	4	7	0	5	6	4	6	15	4	9	13	4	11	12	0	12	11	4
30	2	5	0	3	0	0	4	10	0	5	10	0	7	0	0	10	0	0	12	0	0	13	0	0
40	3	0	0	4	0	0	6	0	0	7	6	8	9	6	8	13	6	8	16	0	0	17	6	8
50	3	15	0	5	0	0	7	10	0	9	3	4	11	13	4	10	13	4	20	0	0	21	13	4
60	4	10	0	6	0	0	9	0	0	11	0	0	14	0	0	20	0	0	24	0	0	26	0	0
70	5	5	0	7	0	0	10	10	0	12	16	8	16	6	8	23	6	8	28	0	0	30	6	8
80	6	0	0	8	0	0	12	0	0	14	13	4	18	13	4	26	13	4	32	0	0	34	13	4
90	6	15	0	9	0	0	13	10	0	16	10	0	21	0	0	30	0	0	36	0	0	39	0	0
100	7	10	0	10	0	0	15	0	0	18	6	8	23	6	8	33	6	8	40	0	0	43	6	8
200	15	0	0	20	0	0	30	0	0	36	13	4	46	13	4	66	13	4	80	0	0	86	13	4
300	22	10	0	30	0	0	45	0	0	55	0	0	70	0	0	100	0	0	120	0	0	130	0	0
400	30	0	0	40	0	0	60	0	0	73	6	8	93	6	8	133	6	8	160	0	0	173	6	8
500	37	10	0	50	0	0	75	0	0	91	13	4	116	13	4	166	13	4	200	0	0	216	13	4
600	45	0	0	60	0	0	90	0	0	110	0	0	140	0	0	200	0	0	240	0	0	260	0	0
700	52	10	0	70	0	0	105	0	0	128	6	8	163	6	8	233	6	8	280	0	0	303	6	8
800	60	0	0	80	0	0	120	0	0	146	13	4	186	13	4	266	13	4	320	0	0	346	13	4
900	67	10	0	90	0	0	135	0	0	165	0	0	210	0	0	300	0	0	360	0	0	390	0	0
1000	75	0	0	100	0	0	150	0	0	183	6	8	233	6	8	333	6	8	400	0	0	435	6	8

CHAP. VIII.

Of the Duty *and* Buſineſs *of thoſe Officers, who ſurvey* Vinegar-Makers *and* Sweets-Makers, *ſo as to prevent the Makers from* evading *the Duty, and* defrauding *the Revenue*; ALSO *of the Riſe and Progreſs of the Exciſe on* Vinegar, Sweets, *or* Made Wines; *and* Mead *or* Metheglin.

The Officer's Duty, who ſurveys Vinegar-Makers.

WHEN the Vinegar-Maker brews his own Preparatives, the Officer muſt take a Gauge of the Worts, and make a Charge after the ſame Manner as on a common Brewer, excepting that the Vinegar-Maker is to have no Allowance for Waſh or Waſte.

The Officer muſt obſerve, that all Liquors, *(viz.)* Stale Beer, Returns of Cyder, Beer, Ale, Verjuice, or any other Liquors proper to be made into Vinegar, which are found in the Poſſeſſion, or Cuſtody of any common Vinegar-Maker, are to be charged as Vinegar, except ſuch Ale, Beer, or other Liquors as are to be drank in the Family; and theſe the Vinegar-Makers muſt keep ſeparate and apart for that Purpoſe. The Law obliges all Vinegar-Makers, when they receive any of the aforeſaid Liquors, to ſhew them to the Officer before they offer to mix any Part thereof with Rape, or with other Materials, or Liquors already in their Cuſtodies. And the Officer is to take Notice, that no Vinegar-Maker muſt receive into his Cuſtody any Liquors proper for making Vinegar, nor muſt he carry or deliver out Vinegar in Caſks, or by the Gallon, without giving Notice to the Officer, unleſs from *Michaelmas* to *Lady-Day*, betwixt the Hours of Seven in the Morning and Five at Night; and from *Lady Day* to *Michaelmas*, between Five in the Morning and Seven in the Evening. The Officer muſt take Gauges of the Worts of thoſe Vinegar-Makers that brew theſe Preparatives, as he does at Victuallers, and he muſt charge the ſame as Vinegar in Barrels, *&c.* after the Rate of 34 Gallons *Beer* Meaſure to the Barrel. The Officer muſt ſtock every Day, (if poſſible) taking the wet Inches of the Store Caſks, as he does at Diſtillers; and muſt put a V. over ſuch Caſks of Liquor as have been drawn off from the Rapes, to diſtinguiſh it from the Preparatives that have not been upon the Rapes. The Officer is to ſtock the Rape-Caſks by the Sound, as Victuallers Caſks are done, *(viz.)* $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, or

The Liquors to be eſteemed Vinegar.

Muſt be ſeen by the Officer before mixed with Rape, *&c.*

Which the Statute Hours.

Muſt gauge the Worts, *&c.*

Muſt ſtock, how.

F; for the Rape being mixed with the Preparative, will admit of no other Way of ſtocking than this: Great Care is neceſſary in examining the Liquor in the Rape-Caſks, or Tubs; for that at the Bottom and Top may be fine and clean old Vinegar, and yet the Middle may be otherwiſe, occaſioned by ſtale Beer, Cyder, or Wine being privately brought in, and put into the Rape unknown to the Officer, in order to run the Duty; but, by means of a Phial, it may be diſcovered; for in the Phial it will appear foul, and of a different Colour. Vinegar-Makers have different Methods of Souring their Preparatives for Vinegar; ſome Makers do it by laying their Caſks in the Sun, with the Bungs open, during the Summer; and others do it by keeping them in Stoves. The Officer is to underſtand, that the Uſe of the Rape is to help to eager the Preparative, and to give it a Flavour, and alſo to fine it. The Officer who is appointed to attend at a Vinegar-yard, to ſee the Liquors, *&c.* proper to be made into Vinegar received, and the Vinegar delivered out, muſt not fail to give his Attendance there, from *Michaelmas* to *Lady-Day*, half an Hour before Seven in the Morning, and half an Hour after Five at Night; and from *Lady-Day* to *Michaelmas*, half an Hour before Five in the Morning, and half an Hour after Seven in the Evening; and upon receiving in ſuch Liquors, *&c.* proper to be made into Vinegar, he muſt then enter in his Stock-Book a true Gauge thereof, as alſo the Number of Hogſheads and Half-Hogſheads of Vinegar that are ſent out, and compare the ſame with the whole Stock daily taken; and when brewing he muſt not leave the ſaid Place, till he has got Gauges of the whole Worts: And at his going off Duty at Night, or coming on in the Morning, he muſt make careful Obſervations to diſcover whether any Fraud has been committed in his Abſence, of which he is to acquaint his ſuperior Officer. The Officer is to take the Depth, and Content or Area of each Tub, Caſk, or Rape, and enter them in the Book; he muſt alſo take and enter the Height of the falſe Bottom, if there be any. *N. B.* The falſe Bottom is a Board full of Holes, which is ſet about eleven Inches, more or leſs, from the Bottom, to ſupport the Rape; ſo that what is below the falſe Bottom is only Liquor. The Officer, when he diſcovers a Fraud by Liquor being privately brought in, and putting it on the Rape without acquainting him with it, he muſt character the Rape-Tub thus, ∴ to ſignify it to be new come in, and he muſt take the following Method for charging it. In caſe the Rape-Tub is full, he muſt compute the Quantity that it holds above the falſe Bottom; but in caſe it be not full, he muſt take the dry Inches to the Surface of the Liquor, and compute the Content between the falſe Bottom and that Surface; and if it be a new Rape, he muſt take two Thirds of that

Muſt phial the Rape.

Different Ways of ſouring.

Of marking and diſcharging Liquor that is brought in privately.

that Content; but if an old Rape, he must take one Half, and thereto he must add the solid Quantity of Liquor below the false Bottom.

	Gall.
Example. The *Rape-Tub* being full, the Content of it above the false Bottom is 188, the Half whereof is 94, (it being an old Rape) —— —— —— —— ——	94
The Content of the solid Liquor below the false Bottom is 33 —— —— —— —— ——	33
The Total	127
	Bar. Gall.
Or —	3½ 8

The Officer is to observe, that the Quantity *above* or *below* the false Bottom is here cast up as an *Ullage*.

A Cash-Table *for* Vinegar-Makers, *at* 8 s. 9 d. *per* Barrel, *by the late Mr.* John Downer, *General Surveyor* in the Distillery.

Bar.	l.	s.	d.	Bar.	l.	s.	d.	Bar.	l.	s.	d.
¼	0	2	2¼								
½	0	4	4½								
¾	0	6	6¾								
1	0	8	9	31	13	11	3	61	26	13	9
2	0	17	6	32	14	0	0	62	27	2	6
3	1	6	3	33	14	8	9	63	27	11	3
4	1	15	0	34	14	17	6	64	28	0	0
5	2	3	9	35	15	6	3	65	28	8	9
6	2	12	6	36	15	15	0	66	28	17	6
7	3	1	3	37	16	3	9	67	29	6	3
8	3	10	0	38	16	12	6	68	29	15	0
9	3	18	9	39	17	1	3	69	30	3	9
10	4	7	6	40	17	10	0	70	30	12	6
11	4	16	3	41	17	18	9	71	31	1	3
12	5	5	0	42	18	7	6	72	31	10	0
13	5	13	9	43	18	16	3	73	31	18	9
14	6	2	6	44	19	5	0	74	32	7	6
15	6	11	3	45	19	13	9	75	32	16	3
16	7	0	0	46	20	2	6	76	33	5	0
17	7	8	9	47	20	11	3	77	33	13	9
18	7	17	6	48	21	0	0	78	34	2	6
19	8	6	3	49	21	8	9	79	34	11	3
20	8	15	0	50	21	17	6	80	35	0	0
21	9	3	9	51	22	6	3	90	39	7	6
22	9	12	6	52	22	15	0	100	43	15	0
23	10	1	3	53	23	3	9	200	87	10	0
24	10	10	0	54	23	12	6	300	131	5	0
25	10	18	9	55	24	1	3	400	175	0	0
26	11	7	6	56	24	10	0	500	218	15	0
27	11	16	3	57	24	18	9	600	262	10	0
28	12	5	0	58	25	7	6	700	306	5	0
29	12	13	9	59	25	16	3	800	350	0	0
30	13	2	6	60	26	5	0	900	393	15	0

The Officer's Duty * who ſurveys* Sweets-Makers.

THE Officer is to keep Stock upon Sweet-Makers, by taking the Depth and Content of the Caſk wherein they ſteep their Fruit: and in ſtocking, he muſt, on each ſurvey, enter the dry Inches thereof to the Surface of the Liquor; or when he cannot eaſily come at ſuch Gauge, he muſt enter the Proportion of $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, or *F.* as they appear to be by ſounding the Outſide of the Caſk. And every Time it is freſh charged with Fruit, he muſt, over the Figure, put *Fr.* and ∴ three Dots, which ſhews it to be new. The Officer muſt be very careful in examining the Steeps with a Phial, becauſe, at the Top of the Fruit, and Bottom of Steep Caſks, the Liquor or Sweets may be rich, luſcious Sweets, when, at the ſame Time, that which is in the Middle, has no other Strength and Sweetneſs than the Water put firſt upon the Fruit, the other Sweets having been drawn off, and conveyed away, by which crafty Practice they frequently run the Duty. Sweets-Makers, likewiſe, have got another Way to deceive and impoſe upon the Officer, by ſetting a Steep again with freſh Fruit, which has been drawn off, and putting two or three Cans on the Top thereof, of the ſmall Sweets that came laſt off from every Steep ſo drawn off, and upon it to lay ſome of the old Rape, or ſpent Fruit, a few Inches deep, until the Liquor on the new Fruit receive a ſufficient Strength and Sweetneſs. The Officer muſt keep Stock on all Sweets drawn off the Steep, *&c.* and he muſt be careful in taſting and palating: So that new Sweets made of Sugar, or Sweets clandeſtinely drawn off the Steep, be not brought into the Stock under his Survey, of which the Duty is not charged; and this the Sweets-Makers may effect by making a Decreaſe in Stock of ſuch Sweets as have been charged with the Duty, which he may ſend away unknown to the Officer, and make that Stock good again to the ſame Inch wet with the new Sweets; and upon which new Sweets, to prevent the Officer's diſcovering the Fraud, the Maker pours a ſmall Quantity of the Sweets which were before in Stock, but the new Sweets lie under it not incorporated together; the Officer therefore muſt always drop his Phial down to the Bottom of the Caſk, ſo that if there is any Fraud, it will be eaſily diſcovered, by the Colour and Taſte thereof. To prevent ſuch Abuſes, the Officer, when he diſcovers that a Steep has been drawn off, and the Sweets clandeſtinely removed, ſo that it is impoſſible for him to have a Gauge thereof, he may take a *preſumptive* Charge from the Steep's Content, or proportionably, according to the Gauge he had the Steep at. It is cuſtomary to charge $\frac{1}{2}$ or $\frac{1}{3}$ of the Quantity in Gallons, from the Gauge taken at the Surface of the Liquor, (according to the Quantity of the Fruit ſteeped) allowing the reſt for the Fruit. The Charge on Sweets is to be made by *Wine*-Meaſure, *viz.* 31 $\frac{1}{2}$ Gallons to the Barrel.

Sweet-Makers muſt be ſtocked, and how.

The Steeps muſt be carefully phialled, and why.

Other Frauds to be guarded againſt.

When a preſumptive Charge may be made, *&c.*

* See alſo *Page* 311.

Gall.	l.	s.	d.	q.
¼	0	0	1	0.571
½	0	0	2	1.142
¾	0	0	3	1.713
1	0	0	4	2.285
2	0	0	9	0.571
3	0	1	1	2.857
4	0	1	6	1.143
5	0	1	10	3.428
6	0	2	3	1.714
7	0	2	8	0.
8	0	3	0	2.285
9	0	3	5	0.571
10	0	3	9	2.857
11	0	4	2	1.143
12	0	4	6	3.428
13	0	4	11	1.714
14	0	5	4	0.
15	0	5	8	2.285
16	0	6	1	0.571
17	0	6	5	2.857
18	0	6	10	1.143
19	0	7	2	3.428
20	0	7	7	1.714
21	0	8	0	0.
22	0	8	4	2.285
23	0	8	9	1.571
24	0	9	1	2.857
25	0	9	6	2.143
26	0	9	10	3.428
27	0	10	3	1.714
28	0	10	8	0.
29	0	11	0	2.285
30	0	11	5	0.571
31	0	11	9	2.857
31½	0	12	0	0.

Factor .019047 *Gall.*

Bar.	l.	s.	d.
¼	0	3	0
½	0	6	0
¾	0	9	0
1	0	12	0
2	1	4	0
3	1	16	0
4	2	8	0
5	3	0	0
6	3	12	0
7	4	4	0
8	4	16	0
9	5	8	0
10	6	0	0
11	6	12	0
12	7	4	0
13	7	16	0
14	8	8	0
15	9	0	0
16	9	12	0
17	10	4	0
18	10	16	0
19	11	8	0
20	12	0	0
21	12	12	0
22	13	4	0
23	13	16	0
24	14	8	0
25	15	0	0
26	15	12	0
27	16	4	0

Bar.	l.	s.	d.
28	16	16	0
29	17	8	0
30	18	0	0
40	24	0	0
50	30	0	0
60	36	0	0
70	42	0	0
80	48	0	0
90	54	0	0
100	60	0	0
110	66	0	0
120	72	0	0
130	78	0	0
140	84	0	0
150	90	0	0
160	96	0	0
170	102	0	0
180	108	0	0
190	114	0	0
200	120	0	0
210	126	0	0
220	132	0	0
230	138	0	0
240	144	0	0
250	150	0	0
260	156	0	0
270	162	0	0
280	168	0	0
290	174	0	0
300	180	0	0
400	240	0	0

Factor 6 *Barrels.*

N. B. If any Number of *Gallons* are multiplied by .019047, or any Number of *Barrels* are multiplied by .6, it will give the neat Duty.

VINEGAR-

VINEGAR-MAKERS, &c.

SOME Part of the Vinegar-Maker and Sweets-Maker's Duty being originally interwoven with that of the Brewer and Diſtiller, it is proper that *Chap* IV. and VII. of this *Second Part* ſhould be likewiſe conſulted.

IN the Year 1696, it was ordained, That no Maker of Vinegar or Sweets ſhould ſell, deliver, or carry out any *Vinegar* or *Sweets*, without first giving Notice to the proper Officer, to the Intent that he may gauge and take an Account of the ſame, but betwixt the Hours of Five in the Morning and Eight in the Evening, from the 29th of *September* to the 25th of *March*; and from the 25th of *March* to the 29th of *September*, betwixt the Hours of Three in the Morning and Nine in the Evening, * upon pain of forfeiting 40 *s.* for every Barrel. And 1696.

THREE Years after, *Anno* 1699, for the avoiding of Diſputes which might ariſe concerning Liquors preparing for Vinegar, it was ordained, That after the 10th of *May* 1699, all ſtale Beer, Returns of Beer, or Ale, Cyder, Verjuice, or any other Liquors proper to be made into Vinegar, which ſhould be found in the Cuſtody or Poſſeſſion of any common Vinegar-Maker, ſhould be deemed to be Vinegar, or Liquors preparing for Vinegar, except ſuch Beer, Ale, or other Liquors as are to be drank in his Family, and which muſt be kept ſeparate and apart for that Purpoſe. AND no Vinegar-Maker muſt receive any Liquors proper for Vinegar, or carry or deliver out any Vinegar in Caſks, or by the Gallon, without Notice to the proper Gauger, but betwixt the Hours of Seven in the Morning and Five at Night, from the 29th of *September* to the 25th of *March*; and betwixt the Hours of Five in the Morning and Seven at Night from the 25th of *March* to the 29th of *September*, upon pain of forfeiting the Sum of 50 *l.* for every ſuch Offence. AND every Vinegar-Maker receiving into his Cuſtody any of the Liquors aforeſaid, muſt ſhew the ſame to the proper Gauger before he mix them, or any Part thereof, with any other Liquors, Rape, or other Materials, on pain of forfeiting 20 *l.* for every ſuch Omiſſion or Neglect. IF any Vinegar-Maker ſhall make uſe of any Store-houſe, Ware-houſe, Cellar, or other Place, for making or keeping any Vinegar, Vinegar-Beer, or Liquors preparing for Vinegar, without firſt giving Notice thereof at the next Office of Exciſe, he ſhall forfeit 50 *l.* for every ſuch private Store-houſe, Ware-houſe, Cellar, and other Place ſo made uſe of without ſuch Notice. The Duties on Vinegar, and Vinegar-Beer, having been computed by different Meaſures, Diſputes have ariſen about charging the ſame; to remedy which, it was ordained, That 34 Gallons *Ale*-Meaſure ſhall be accounted and returned by the Gauger for a Barrel of Vinegar, Vinegar-Beer, or Liquor preparing for Vinegar, notwithſtanding any former Law or Cuſtom to the contrary. 1699.

SWEETS-MAKERS.

IN the Year 1697, it was ordained, That, after the 20th of *June* 1697, no Sweets-Maker, or other Perſon making Sweets, ſhould erect, ſet up, or make uſe of any Steeping-Tub, Ton, Caſk, or other Veſſel, for making or keeping Sweets, without firſt giving Notice thereof at the next Exciſe-Office, upon Pain of forfeiting 50 *l.* and for *concealing* Sweets, the Penalty is 40 *s. per* Barrel. 1697.

* See the Hours altered, *Anno* 1699.

Note. No Sweets-Maker ſhall deliver, or carry out any Sweets either in whole Caſks, or by the Gallon, without giving Notice to the Officer but between the Hours of 5 in the Morning and 8 at Night from *Michaelmas* to *Lady-Day*; and between 3 in the Morning and 9 at Night, from *Lady-Day* to *Michaelmas*.

1699. TWO Years after, *Anno* 1699, all Liquors made by Infuſion, Fermentation, or otherwiſe, from foreign Fruit or Sugar, or from Fruit or Sugar mix'd with other Materials, and commonly made uſe of for recovering, increaſing, or making of any Kinds of Wine or Cyder, or of any Liquor called Wine, were declared to be *Sweets*. AND it was alſo ordained, That all Perſons retailing any of the Liquors aforeſaid, having above two Gallons of Sweets in their Cuſtody, ſhall be deemed Makers of Sweets for ſale. AND all that were Refiners of Sugar before the firſt of *June*, 1699, ſhould enter into a Bond for 500 *l.* not to ſell, deliver out, or diſpoſe of any Sweets or Liquors, commonly called Syrups, made from Sugar, (except Melaſſes,) or uſe them in making, increaſing, or improving Wine, Cyder, Perry, or any Liquor called Wine, ſhould not be chargeable with the Duties of Sweets or Syrups till they are ſold, or made uſe of.

1719. TWENTY Years after, *Anno* 1719, It having been experienced that Makers of Sweets for ſale, when they have occaſion to deliver Sweets to Vintners and others, take the ſame from their Stock-Caſks of Sweets, and, having ſo done, immediately make Quantities of new Sweets, and mix ſuch new Sweets with the remaining Part of their Stock of old Sweets, without the leaſt Knowledge of the Officer, who ſhould charge the Duties for ſuch new Sweets: TO remedy which it was ordained, That after the firſt Day of *Auguſt*, 1720, if any Sweets made for ſale, for which the Duties have been duly paid, or charged by the proper Officer, ſhall be intended to be removed from one Place to another, the Officer from whence ſuch Sweets are to be removed, ſhall, upon requeſt, give a Certificate, or Permit, under his Hand, expreſſing the Quantity and Qualities of ſuch Sweets, and the Name of the Perſon from and to whom ſuch Sweets are to be ſent, and this without any Fee or Reward; and if any Maker of Sweets for ſale ſhall remove, or cauſe to be removed any Sweets, *or* if any Vintner ſhall receive into his Cuſtody, or Poſſeſſion, any Sweets without ſuch a Permit or Certificate, ſuch Maker of Sweets for Sale, and ſuch Vintner, ſhall reſpectively forfeit 10 *s.* for every Gallon of Sweets ſo removed; and likewiſe all ſuch Sweets, which ſhall be found removed without ſuch Certificate, and the Caſks and Veſſels containing the ſame, ſhall be forfeited, and may be ſeized by any Officer of Exciſe; one Half thereof for the Uſe of the King, and the other Half for the Uſe of the Perſon that ſhall ſeize the ſame. AND all Seizures of Sweets, (and the Caſks and Veſſels containing the ſame) ſhall be proceeded upon, and heard in the ſame Manner as is directed upon Seizures of Brandy, Arrack, Rum, Spirits, or Strong-Waters, not exceeding as aforeſaid; and ſuch Proceedings ſhall not be liable to any Appeal or *Certiorari*. AND all Informations, and other Proceedings relating to the ſeveral Duties under the Management of the Commiſſioners of Exciſe, as alſo before Juſtices of the Peace, ſhall be entered and inrolled in *England*. AND if, upon any Trial, any Queſtion ſhall ariſe relating to the Duties of Exciſe, or Cuſtoms; *or* to any Penalty,

Seizure, *or* Forfeiture relating to the same; *or* concerning the keeping of any Office of Excise; *or* whether any of the Defendants be an Officer for the said Duties; *or* either of them; that in every such Case, it shall be sufficient to shew that such Person was actually exercising of and employed in such Office or Offices respectively, at the Time when the Matter in question, upon such Trial, did happen, without producing any one to prove the Names of the respective Commissioners to any Commissions, in the Cases abovementioned, to be their Hand-Writing. AND all Persons prosecuted for any Thing done in Execution of the Premises, might plead the general Issue, and give the special Matter in Evidence; and if the Plaintiff should be nonsuited, or there should be a Verdict for the Defendant, he shall have full Costs of Suit.

EIGHTEEN Years after, *Anno* 1737, it was ordained, That after the 24th of *June* 1737, the Duty of 36*s.* a Barrel upon Sweets should cease and determine; and that instead thereof, there should be paid by the Maker a Duty of 12*s.* for every Barrel of Liquor made for sale in *Great-Britain*, by Infusion, Fermentation, or otherwise, from foreign Fruit or Sugar; *or* from *British* Fruit or Sugar; *or* from Fruit or Sugar mixed with any other Ingredients or Materials whatsoever, commonly called *Sweets*; or called or distinguished by the Name of *made Wines*; and so in Proportion for a greater or lesser Quantity. AND all Makers of the Liquors called *Sweets*, or *made Wines*, for sale, shall give Notice to the next Officer of Excise of their Names and Places of Abode, and of every Room and Place made use of for the making or keeping of Sweets or made Wines, on pain of forfeiting 20*l.* AND all the Powers heretofore given, in relation to the Duties upon Sweets, shall be in force for the collecting and recovering this Duty, and for the preventing, detecting, and publishing any Frauds relating thereto. AND all the Penalties relating to this Duty, may be levied and mitigated by such Ways and Methods as any Penalty may be levied or mitigated by any of the Laws of Excise; and of which Penalties and Forfeitures, one Half to go to the King, and the other to the Informer. AND if any Person shall be sued for any Thing done in the Execution of the Premises, or any Law of the Excise now in force, he may plead the general issue, and give the Matter in Evidence, and he shall have treble Costs, in case of a Verdict for the Defendant; or if the Plaintiff shall be nonsuited. 1737.

BUT no Person shall sell made Wines to be drank in their Houses, unless they are first licenced by two Justices of the Peace; for which Licence, if it be found by the Clerks, 2*s.* 6*d.* only shall be paid him; nor any Fee or other Reward whatsoever to the Clerk of the Peace for entering the same; or on any other Account, on pain of 5*l.* in case either Justices Clerks, or any Clerk of the Peace, shall ask, receive, or demand any more; but if the Licence is not found by the said Justice's Clerk, then no Fee whatsoever shall be due to him on that Account. AND it was ordained, that no Licence should be granted for the retailing of any made Wines whatsoever, but to such Persons only as shall keep publick Victualling-houses, Inns, Coffee-houses, or Ale-houses.

☞ Wines made by the Owners or Occupiers of *British* Vineyards, from the Juice of *British* Grapes only, are not *chargeable* with any Duty.

CHAP.

CHAP. IX.

Shewing the Riſe *and* Progreſs *of the* Exciſe *on* Foreign *Brandy, Rum, Arrack, and other* Foreign *Exciſeable Liquors.*

SOME Gentlemen may poſſibly think this Chapter a little unneceſſary; but my own Experience having effectually convinced me of its Uſefulneſs, I ſhall by no Means omit it. And here it is to be obſerved, that what originally relates to the Subject of this Chapter is ſo interwoven with what is treated of in CHAPTERS IV. and VII. that thoſe *Chapters* are alſo neceſſary to be conſulted.

IN the Year 1663, for the better collecting the Duties of Exciſe upon all *foreign* or *imported* Liquors, it was ordained, That no ſuch Liquors ſhould be landed out of any Ship or Veſſel from beyond the Seas, before Entry thereof be made with the Officer, or Collector appointed for the Exciſe in the Port where the ſame ſhould be imported, or before the Duty be paid. AND all ſuch foreign Liquors, which ſhall be landed without a Warrant firſt ſigned by the Officer or Collector of Exciſe of the Port for that Purpoſe, *or* without the Preſence of ſuch Officers, ſhall be forfeited, *or* the Value thereof; one Half to the King, the other Half to the Informer, who ſhall ſeize or ſue for the ſame, to be recovered of the Importer or Proprietor of the ſaid Liquors. AND no exciſeable Liquors (except Beer, Ale, Cyder, Perry, and Metheglin,) coming by Coaſt-Cocket, or Certificate, may be landed, *or* put on Shore, without firſt making an Entry with the Officer of Exciſe in the proper Port, upon Pain of forfeiting double the Value of the Liquor ſo landed, or put on Shore. 1663.

SEVEN Years after, *Anno* 1670, it was declared and ordained, That the Liquor, called *Brandy*, was *a Strong Water, perfectly made*, and imported from beyond the Seas, is chargeable with the full Duty impoſed upon Strong Water, perfectly made, imported from beyond the Seas, and is not chargeable with the Duty impoſed upon Spirits made of Wine or Cyder imported. 1670.

TWENTY-TWO Years afterwards, *Anno* 1692, great Frauds having been carried on by the Importation of Strong-Waters, Spirits, Aqua Vitæ, or Brandy, in ſmall Quantities, it was ordained, That if any Brandy, ſingle or double, after the 20th of *March*, 1693, ſhould be imported in any Veſſel or Caſk, which ſhould not contain 60 Gallons at the leaſt, it ſhould be forfeited, *or* the Value thereof; one Half to the King, the other Half to the Informer, to be recovered of the Importer or Proprietor by Action of Debt, Bill, Plaint, or Information, in any of the Courts at *Weſtminſter*. 1692.

NINE Years after, *Anno* 1701, for the preventing all ſecret and unlawful Importation of foreign Spirits, or Brandy, it was ordained, That if any foreign Brandy, or Spirits of any Kind whatſoever, ſhould, after the 29th of *September*, 1701, be imported, *or* be brought into any Port, Creek, or Haven of this Realm, in any Ship or Veſſel under the Burthen of *fifteen Tons* * (unleſs it be for the Uſe of 1701.

* See this extended to Ships of 30 and 40 Tons, Page 316; and to thoſe of 100 Tons, Page 328.

of *such* Seamen on board *such* Ship or Veſſel only, and this not exceeding one Gallon * for each Seaman,) ſuch Brandy or Spirits ſhould be forfeited; one Half to the King, and the other Half to ſuch Perſon as ſhould ſeize or ſue for the ſame, by Bill, Plaint, or Information, in any of the King's Courts of Record at *Weſtminſter*.

ABOUT *the ſame* Year, *Anno* 1701, for the encouraging the Conſumption of malted Corn, and for the better preventing the running of *French* and *foreign* Brandy, it was ordained, That if any Perſon ſhould import, land, or deliver out of any Ship, Veſſel, or Boat, any *French* Brandy, before the Duty, payable for the ſame, had been paid, or ſecured to be paid, *or* by Licence from the proper Officer ſo to do, every Perſon that ſhall ſo do, *or* be aiding or aſſiſting, *or* ſhall conceal the ſame when landed, ſhall not only forfeit the Goods ſo imported, but forfeit and pay double the Value of ſuch Goods ſo clandeſtinely imported; one Half (after Charges of Suit is deducted) to the Crown, and the other Half to the Informer, who ſhall ſue for the ſame in any of the Courts of Record, by Bill, Plaint, or Information. AND if any Officer belonging to the Exciſe or Cuſtoms, ſhall connive at, *or* be concerned in any clandeſtine Importation, *or* ſhall conceal the ſame, *or* not give Notice to the Commiſſioners of the Exciſe or Cuſtoms, *or* ſhall compound, without Licence, with any Perſon concerned in the clandeſtine Importation of *French* Brandy, ſuch Officer ſhall not only be rendered incapable of any Office in the Revenues, but ſhall alſo forfeit the Sum of 500*l.* to be recovered and divided as laſt before-mentioned. 1701.

SEVENTEEN Years after, *Anno* 1718, it having been obſerved that the importing of Rum in ſmall Caſks, or Veſſels, was frequently done with deſign, that the ſame may more eaſily and clandeſtinely be carried off, without paying the Duties; to remedy which, it was ordained, That if any Rum ſhould be imported, after the 29th of *September* 1719, into any Port, Harbour, Haven, or Creek in *Great-Britain*, in any Caſk or Veſſel not containing, at the leaſt, 20 Gallons, (except it be only for the Uſe of the Seamen then on board ſuch Ship or Veſſel) all ſuch Rum, *or* the Value thereof, ſhall be forfeited, unleſs it ſhall appear to the Satisfaction of the principal Officers of the Cuſtoms at the Port of Importation, that the Rum ſo imported in ſmall Caſks was for the Uſe of the Maſter or Seamen in the Voyage, *or* that it was imported without Fraud or Concealment; and in every ſuch caſe, the Officers are to admit ſuch Rum to an Entry; and it is not forfeited. AND after the 25th of *March* 1719, if in any caſe, any foreign Goods ſhould, by any Collier, Fiſher-Boat, or other Coaſting Veſſel or Boat, be taken in at Sea, *or* out of any Ship or Veſſel whatſoever, in order to be landed, or put into any other Ship, Veſſel, or Boat, without Payment of the Duties, ſuch Goods, Wares, and Merchandizes ſhall be forfeited, and the Maſter of ſuch Collier, Fiſhing-Boat, or other Coaſting Veſſel or Boat, ſhall forfeit treble the Value thereof, unleſs it be in caſe of Neceſſity, and of which ſuch Maſter muſt immediately make Proof before the chief Officers of the Cuſtoms of the firſt Port where he ſhall arrive in this Kingdom; and the Maſter, or other Perſon, taking charge of the Ship or Veſſel, out of which ſuch Goods ſhould be taken in at Sea, unleſs in caſe of Neceſſity, as aforeſaid, ſhall forfeit treble the Value of ſuch Goods ſo unſhipped; one Half to the King, the other Half to the Informer. 1718.

THE *ſame Year*, it was likewiſe ordained, That after the 25th of *March* 1719, all Goods, Wares, and Merchandizes, which could be ſalved out of any

* See this altered to Two Gallons, *Page* 316.

Ship

Ship or Veſſel that ſhould happen to be forced on Shore, *or* ſtranded upon the Coaſts of this Kingdom, (not being wrecked Goods, or Jetſham *, Flotſham †, or Lagan‡,) ſhould, after Charges of Salvage and other Charges paid, as aforeſaid, be liable to the Payments of the like Cuſtoms and other Duties, with ſuch Drawbacks upon Exportation, and the like Allowances and Abatements, as ſuch Goods would by any Law or Laws then in force be liable unto, and intitled to have, in caſe the ſame were regularly imported.

THREE Years after, *Anno* 1721, the Laws then in force, for preventing the clandeſtine Importation of prohibited and uncuſtomed
1721. Goods, having been found inſufficient for that Purpoſe, it was ordained, That every Veſſel of 15 Tons, or under, bringing any Brandy, Arrack, Rum, Strong Waters, or Spirits, of any kind whatſoever, into any Port or Creek, [except *Two* Gallons for the Uſe of each Seaman on board ſuch Ship] ſhould be forfeited, with all her Tackle, Furniture, and Apparel, *or* the Value thereof, and ſhall be ſeized, recovered, broke up and ſold: and this Forfeiture was the next Year, *Anno* 1722, extended to Veſſels of 30 Tons. AND it appearing that the Intention of the Laws had been eluded by the clandeſtine Importation of Goods in Ships above the Burthen of 30 Tons; for the preventing of which, it was ordained, That if after the 25th of *March*, 1722, any foreign Brandy, Arrack, Rum, Strong-Waters, *or* Spirits, of any kind whatſoever, were imported in any Veſſel of 40 Tons, *or* under, ſuch Ship or Veſſel, together with her Tackle, Furniture, and Apparel, and alſo all ſuch Brandy, Arrack, Strong-Waters, or Spirits, or the Value thereof, ſhall be forfeited, and may be ſeized by any Officer of the Cuſtoms or Exciſe. AND it was ordained, That after the Seizure and Condemnation of ſuch Ship, Veſſel or Boat, the principal Officers of his Majeſty's Cuſtoms, in the Port *or* Place where the ſame had been condemned, are to cauſe the Hull of ſuch Ship, Veſſel, or Boat, to be burnt, and wholly deſtroyed, and the Tackle, Furniture, and Apparel thereof, to be publickly ſold to the beſt Advantage, and the Produce to be divided, as hereafter is directed, the reaſonable Charges of proſecuting, ſelling, and burning the ſame, being firſt deducted.

GREAT Frauds having been committed by the Uſe of Boats, Wherries, Pinnaces, Barges, or Gallies, which were ſometimes rowed with ſix, eight, or twelve Oars, built on purpoſe for the Smuggling Trade; it was ordained, That after the 25th of *March* 1722, if any Boat, Wherry, Pinnace, Barge, or Galley, rowing, or built to row with more than four Oars, ſhould be found upon the Water, *or* in any Barge-houſe, Work-houſe, *or* other Place, within any of the Counties of *Middleſex*, *Surry*, *Kent*, or *Eſſex*, *or* in the River of *Thames*, above or below Bridge, *or* within the Limits of the Ports of *London*, *Sandwich*, or *Ipſwich*, *or* the Members or Creeks to them belonging, ſuch Boat, Wherry, Pinnace, Barge, or Galley, with all her Tackle and Furniture, *or* the Value thereof, ſhould be forfeited, and ſhall be ſeized by any Officer of the Cuſtoms; and the Owners thereof, *or* any Perſon uſing *or* rowing ſuch Veſſel, ſhall forfeit 40*l.* and ſuch Boat, Wherry, Pinnace, Barge, or Galley, after Condemnation, muſt be burnt, and the Tackle, Furniture, and Apparel thereunto belonging ſold, and the Produce divided, (Charges of proſecuting, ſelling, and

* *Jetſham*, is where any Thing is caſt out of a Ship that is in danger, and the Ship notwithſtanding periſhes.

† *Flotſham*, is where a Ship is ſunk, or caſt away, and the Goods are floating upon the Sea.

‡ *Lagan*, is when Goods that are heavy are thrown over-board, before the Wreck of the Ship, which ſinks to the Bottom of the Sea.

and burning, being first deducted;) but this Ordinance, (as is here after mentioned) does not extend to any royal Barge, *or* to any Boat in the Service of any Merchant Ship, *or* to any Barge, or Vessel licensed by the Admiralty; yet Security must be first given, that such Boat shall not be used for running of Goods.

AND all Persons, after the 25th of *March* 1722, found passing within 20 Miles of the Coast, knowingly with any foreign Goods landed without due Entry, and Payment of the Duties, and being more than *five* in Company, *or* shall carry any offensive Arms or Weapons, *or* wear any Vizard Mask, or other Disguise, when passing with such Goods, *or* shall resist the Officers of the Customs or Excise in the seizing of any sort or kind of run Goods, shall be deemed and taken to be Runners of foreign Goods; and, upon Conviction, shall be adjudged guilty of Felony, and shall be transported as a Felon to some of his Majesty's Plantations in *America*, there to remain for the Space of seven Years; and if any Offender shall return into *Great-Britain*, or *Ireland*, before the Expiration of the said Term, they shall suffer Death. 1722.

AND it was declared, That if any Runner of foreign Goods, within *two* Months after his Offence, and before his Conviction, should discover to the Commissioners of the Customs or Excise any *two* or *more* of his Accomplices*, so as they, or *two* of them *at least*, be convicted, and the Value of the Goods so recovered shall exceed 50 *l.* he shall receive 40 *l.* for each Person so convicted on such Discovery, and he himself shall be acquitted. AND if any other Person makes such Discovery to the said Commissioners within *three Months* after such Offence has been committed, provided the Value of the said Goods so recovered for the Use of the King on such Discovery shall exceed 50 *l.* he shall receive 40 *l.* for every Offender so discovered and convicted, over and above any other Reward or Recompence, which he may be intitled unto, on Account of the Goods so carried or conveyed away: which respective Reward of 40 *l.* is to be paid by the Commissioners of the Customs or Excise out of any publick Money in their Hands, [in proportion to the Duties payable on the Goods so run] upon producing a Certificate from the Judge of the Court where the Offender was convicted: and which Payment by any Receiver General, or Cashier, shall be allowed in his Accounts. AND as this clandestine Trade is greatly encouraged by Persons, who, for their private Lucre, receive and buy the Goods so clandestinely imported, it was therefore ordained, That if any Person should receive or buy any Goods, Wares, or Merchandizes, knowing the same to be clandestinely run or imported, and shall be convicted thereof, upon the Oath of *one or more* credible Witnesses, *or* by the Confession of the Party, before any Justice of the Peace of the County, Division, or Liberty where the Offence shall be committed, or the Offender shall be found, he shall forfeit 20 *l.* one Half to the Informer, the other Half to the Poor of the Parish where the Offence was committed, to be levied by Distress and Sale of the Offender's Goods, by Warrant of such Justice before whom he was convicted, as aforesaid; and, for want of Distress, such Justice must commit the Offender to Prison for three Months.

IT having been discovered that several Dealers in foreign Brandy, Spirits, or Strong-Waters, who have large Stocks of the said Liquors, and live near the Sea Coasts, and thereby furnish themselves with the said Liquors by running them, *or* procuring them from others that have run them: And as many of those Dealers receive great Quantities of *British* Spirits, which are mostly brought from *London*, with Permits, and which are either drawn so low, or by mixing with Water, that they are of little or no Value; and by these Spirits being

* See *Pages* 325, 326, 335, 336.

ing in their Cuſtody, they have Opportunities of increaſing their Stocks of foreign run Liquors; and when any Increaſe is diſcovered, they pretend to the Officers it has been made by mixing of the ſaid mean *Britiſh* Spirits with their foreign Goods, when in truth they really deſtroy the ſaid *Britiſh* Spirits, and never mix it with their *foreign* Goods, by which Means the running of the ſame is difficult to be diſcovered; and the pernicious Practice of running foreign Brandy, Spirits, or Strong-Waters, is ſucceſsfully carried on: For preventing which, it was ordained, That after the 25th of *March* 1722, every Dealer in foreign Brandy, Spirits, or Strong-Waters, who then had, or ſhould afterwards receive any *Britiſh* Spirits, ſhould keep the ſame in ſeparate Cellars, or other Places, from their foreign Goods, on pain of forfeiting 10*s.* for every Gallon of *Britiſh* Spirits, which ſhould be found in any Vault, or other Place, where any Dealer ſhould have or keep any foreign Brandy, Spirits, or Strong-Waters, together with the Caſks and Veſſels containing ſuch *Britiſh* Spirits; and in caſe any Increaſe of foreign Brandy, Spirits, or Strong-Waters ſhould be found by any Officer in the Hands of any ſuch Dealer, after his former Survey, it ſhould be deemed foreign Brandy brought in without a Permit, and ſuch Increaſe ſhall be forfeited, together with the Caſks, and may be ſeized, unleſs the Owners make it appear, that ſuch Increaſe was made by a Mixture of his *Britiſh* Spirts with foreign Brandy, in the Officer's Sight, *or* that it was brought in by Permit, *or* that it was Part of ſome condemned Goods, and that the Officer had Notice given him of bringing it in. IT having been diſcovered, that great Frauds had been carried on by Retailers of foreign Brandy receiving ſmall Quantities of Brandy, leſs than a Gallon, into their Stock without any Permit, by which Means the Runners of it find Means to diſpoſe of great Quantities of run Brandy, Spirits, or Strong-Waters; for preventing which it was ordained, That if any Retailer, after the 25th of *March* 1722, ſhould receive leſs than *one* Gallon into his Cuſtody of foreign Brandy, Spirits, or Strong-Waters, without a Permit ſigned by the Officer of Exciſe, ſignifying that the Duties are paid, or ſecured to be paid, *or* that the ſame had been condemned as forfeited, *or* was Part of ſome Perſon's Stock in Hand on the firſt of *Auguſt* 1720, he ſhall forfeit all ſuch foreign Brandy, Spirits, or Strong-Waters ſo found in his own, or in the Cuſtody of any other Perſon for his Uſe, without a Permit, together with the Caſk, Bottle, or other Veſſel wherein it is contained. AND all the Runners of Brandy, and other cuſtomable and prohibited Goods, and the Perſons receiving ſuch Brandy or Goods, knowing the ſame to be run, may be proſecuted by Action, Bill, Plaint, or Information, and a *Capias* ſhall iſſue in the firſt Proceſs, ſpecifying the Sum ſued for: and ſuch Perſon accuſed ſhall be obliged to find ſufficient Security for his Appearance, and to give ſufficient Bail to anſwer all Penalties incurred by his Offence, if he ſhall be convicted thereof, *or* to render his Body to Priſon. IT having been ordained, That all Veſſels, Boats, Horſes, and other Cattle and Carriages whatſoever * employed in the landing, relanding, removing, Carriage or Conveyance of Goods, which were unſhipped, the Duties not being firſt paid or ſecured, *or* of any Goods, after a Debenture has been obtained for the Drawback, ſhould be forfeited; but the Charge of condemning ſuch Veſſels and Boats, in the Exchequer, and the keeping of ſuch Horſes till ſuch Condemnation, being very great, whereby Officers are diſcouraged from making ſuch Seizures, and the Smugglers encouraged in their illegal Practices; to remedy which, it was ordained, That all Seizures made after the 25th of *March* 1722, by virtue of any Law relating to the Revenue of the Cuſtoms and Exciſe,

* See *Pages* 324, 328.

Exciſe, may be examin'd into, and proceeded upon, and determined by *two or more* Juſtices of the Peace reſiding *near the Place* where the Seizure was made, after ſuch Summons, or publick Notice, as is directed on *Page* 285, whoſe Judgments ſhall be good and effectual in Law, and not liable to any Appeal or *Certiorari*: And the Juſtices of *London* and *Weſtminſter* are equally impowered as other Juſtices of the Peace are in their reſpective Counties.

IT having been found, That foreign Goods are frequently taken in at Sea by Maſters of Coaſting Veſſels, who privately land them, to the Prejudice of the Revenue and fair Trader; for remedy of which, it was ordained, That if any Goods are brought by Coaſt-Cocket, Tranſire, Let-paſs, or Certificate, from one Port into another in *Great-Britain*, and are unſhipped to be landed, or put on ſhore, before the Cocket, Tranſire, Let-paſs, or Certificate is delivered to the Cuſtomer, Collector, or Comptroller, and a Warrant obtained for the landing of ſuch Goods, after the 25th of *March*, the Maſter, Purſer, Boatſwain, or other Mariner taking charge of ſuch Ship or Veſſel out of which the Goods ſhall be landed, conſenting thereunto, ſhall forfeit the Value of the Goods ſo unſhipped. AND if any foreign Goods, or Manufactures, coming Coaſtwiſe, ſhall be landed, without the Preſence of an Officer of the Cuſtoms, they ſhall be forfeited, or the Value thereof. AND to clear all Doubts relating to the Seizing of Brandy, Arrack, Rum, Spirits, and Strong-Waters, as well foreign as *Britiſh*, and alſo of ſuch foreign exciſeable Liquors as are to be declared to be forfeited; it was ordained, That the ſaid Liquors, which have, are, or hereafter ſhall be forfeited by Virtue of any Law now in being, *or* that ſhould hereafter be made, together with the Caſks, Bottles, or other Package containing the ſame, ſhall and may be ſeized by any Officer of the Cuſtoms or Exciſe reſpectively, *or* by any Perſon duly authorized, but by no other Perſon whatſoever. AND after the 25th of *March*, all Perſons reſiſting any Officer of the Cuſtoms or Exciſe in the due ſeizing of any Brandy, Rum, Arrack, Spirits, or Strong-Waters, either *Britiſh* or foreign, *or* any foreign exciſeable Liquors, *or* in reſcuing, or cauſing to be reſcued the ſame, after it has been ſeized, *or* who ſhall endeavour, at, or after ſuch Seizure, to ſtave *or* deſtroy the Caſk, Veſſel, or Bottle, containing the ſame, ſhall forfeit 40 *l.* for every ſuch Offence. AND if any Perſon, for having done his Duty, in relation to the Premiſes, is proſecuted, he may plead the general Iſſue, and give the ſpecial Matter in evidence, and he ſhall recover treble Coſts.

THREE Years after, *Anno* 1724, the clandeſtine and colluſive Importation of Brandy, Arrack, Rum, Spirits, and Strong-Waters, Coffee, Tea, Cocoa-Nuts, and Chocolate, notwithſtanding the many good Laws made to prevent the ſame, being found to be very prejudicial to the Revenue and fair Trader; for the remedying of which, it was ordained, That after the 24th of *June* 1725, any of the Officers of Exciſe may go on board and enter into any Ship or Veſſel whatſoever, in the Limits of any of the Ports of *Great-Britain*, and continue on board the ſame, and ſearch in like manner as the Officers of the Cuſtoms, for all ſuch Brandy, Rum, Arrack, Spirits, or Strong-Waters, or other exciſeable Liquors whatſoever; and for all Coffee, Tea, Cocoa-Nuts, Chocolate, and Cocoa-Paſte, and to ſeize all ſuch there found, which by Law ſhall be forfeited, together with the Caſks or other Package containing the ſame, for the King's Uſe. AND that in like manner they may ſeize any of the ſaid Commodities, which, before Entry, and without paying or ſecuring the Duties, ſhall be found unſhipping, or unſhipped, 1724.

to

to be laid on Land, together with the Caſks, or other Package whatſoever, in which they are contained. AND it was alſo ordained, That if any Officer of Exciſe ſhould have reaſon to ſuſpect any foreign Brandy, Rum, Arrack, Spirits, or Strong-Waters, were fraudulently hid or concealed in any Place whatſoever, though it be entered for keeping the ſame, or not entered, with an Intent to evade the Duties; and if ſuch Place ſhall happen to be in the Cities of *London* or *Weſtminſter*, or within the Bills of Mortality, then, upon the Oath of the Officer, made before any two or more of the Commiſſioners of Exciſe, *or* in caſe ſuch Place ſhall happen to be in any other Part of *Great-Britain*, then, upon the Oath of ſuch Officer, made before *one or more* Juſtices of the Peace for the County, Riding, Diviſion, or Place where the Officer ſhall ſuſpect ſuch Concealment, (which Oath muſt ſet forth the Ground of his Suſpicion) then, and in ſuch Caſe, the ſaid Commiſſioners, or Juſtices of the Peace reſpectively, before whom ſuch Affidavit has been made, if he or they ſhall think it reaſonable, by ſpecial Warrant under his and their reſpective Hands and Seals, ſhall impower ſuch Officer, by Day or by Night; but if in the Night-time, in the Preſence of a Conſtable, or other lawful Peace-Officer, to enter into every ſuch Place where he ſuſpects ſuch Concealment is made, and to ſeize all ſuch foreign Brandy, Rum, Arrack, Spirits, or Strong-Waters, which he ſhall find ſo concealed, as forfeited, together with all the Caſks, or other Veſſels and Things containing the ſame; and if any Perſon whatſoever ſhall obſtruct, let, or hinder any Officer for the ſaid Duties in the executing any of the Powers or Authorities hereby given him, every ſuch Perſon ſo offending, ſhall forfeit 100 *l.* for every ſuch Offence. AND no Brandy, Rum, Arrack, Spirits, or Strong-Waters, whether *Britiſh* or foreign, ſhall be ſold or expoſed to ſale, but in an entered Place, upon pain of forfeiting the ſame, and the Caſks, Bottles, or other Veſſels containing the ſame, over and above the Penalties hereof impoſed, of 40 *s.* * *per* Gallon. AND it was likewiſe ordained, That every Perſon, who ſhall keep a publick Houſe, Shop, Cellar, or Warehouſe, for ſelling of Brandy, Rum, Arrack, Spirits, or Strong-Waters; and ſhall have in their Cuſtody, or in the Cuſtody of any other Perſon for their Uſe, more than 6 *lb.* of Tea, Coffee, Chocolate, or Cocoa-Nuts; ſhall be deemed Dealers in ſuch Goods.

AND many Dealers in Brandy, Rum, Arrack, Spirits, or Strong-Waters, Coffee, Tea, and Cocoa-Nuts, which have been clandeſtinely imported, to ſecure ſuch Goods from being ſeized, frequently take out Permits, to remove ſuch Goods from one Place to another, but, in reality, do not remove them, as authorized by the ſaid Permits, but make uſe of the Permits to ſecure the like Quantity of ſuch Goods from being ſeized, which have been clandeſtinely imported; to remedy which, it was ordained, That any Perſon who ſhall take out any Permit after the 24th of *June* 1725, and ſhall not really ſend away the Goods, or return the Permit within the Time limited in the Permit, to the Officer from whom it was had, ſhall forfeit and loſe treble the Value of the Goods mentioned in ſuch Permit, to be eſtimated according to the higheſt Rate of the like Commodities at the Time when ſuch Forfeiture ſhall be incurred: and if, on taking an Account, there does not appear to the Officer to be a ſufficient Decreaſe to anſwer the Removal of the Commodities mentioned in ſuch Permit, the Officer may ſeize a like Quantity of the Brandy, Arrack, Rum, Spirits, Strong-Waters, Tea, Coffee, and Cocoa-Nuts, out of the Stock of the Perſon, who took out the Permit. AND no Permit ſhall be demanded, taken, or received, from any Officer for the Removal of any of the

* See *Page* 285.

ſaid

ſaid Goods but by the ſpecial Direction, in Writing, of the Perſon, or his known Servant from whoſe Stock ſuch Commodities are to be removed, upon pain of forfeiting 50*l.* for every Offence; and, in Default of Payment, to ſuffer three Months Impriſonment, without Bail or Mainprize. AND for the more effectual detecting the running of Goods, it was ordained, that any Perſon or Perſons, who ſhall, knowingly, harbour, keep or conceal *, or ſhall knowingly permit or ſuffer to be harboured, kept, or concealed any prohibited or run Goods, or Commodities whatſoever, liable to any Cuſtoms or Duties, the Party offending, whether they have or have not, *or* do or do not claim, or pretend to have any Property or Intereſt in ſuch Goods or Commodities ſo harboured, ſhall forfeit for every Offence all ſuch Goods or Commodities whatſoever ſo harboured, kept, and concealed, and treble their Value: and the Value of the Goods ſo forfeited is to be taken at the Rate the beſt Goods of the like ſort are ſold for at *London* at the Time of the Forfeiture. AND if any prohibited or run Goods are offered to ſale †, or if they ſhall be pretended to have been run, by the Perſon offering them to ſale: ſuch Goods, together with all the Package whatſoever containing the ſame, are forfeited, and may be ſeized by the Perſon to whom they were ſo offered to ſale, *or* by any Officer of the Cuſtoms or Exciſe; and if ſuch Goods ſhall be ſeized within the Weekly Bills of Mortality, (then within 24 Hours;) but if out of the Weekly Bills of Mortality, (then within 48 Hours) after ſuch Seizure, ſhall be lodged and ſecured as follows: IF the Goods ſo ſeized are either prohibited, or are chargeable with only Duties of Cuſtoms, or Import Duties, and not liable unto any Exciſe or Inland Duties, they ſhall be lodged in ſome Warehouſe belonging to the Commiſſioners of the *Cuſtoms*; but if the Goods ſo ſeized are liable to any Inland Duties, then they ſhall be lodged in ſome Office of *Exciſe*, or Safe-Place in the Cuſtody of an Officer of Exciſe, *near* the Place where ſuch Seizure ſhall be made, and the Perſon offering ſuch Goods to ſale, ſhall forfeit the Goods, and treble the Value thereof, to be eſtimated as aforeſaid; and all ſuch prohibited or run Goods, with the Package, may be ſeized from the Buyer by the Seller, or by any Officer of the Cuſtoms or Exciſe, to be lodged and ſecured, as before appointed, where ſuch Goods are ſeized from Perſons offering the ſame to ſale. AND it was further ordained, That in every Caſe where any Perſon whatſoever ſhall buy ‡ any ſuch prohibited or run Goods, or Commodities whatſoever, or which the Seller, at the Time of Selling thereof, ſhall pretend to be either prohibited or run, the Perſon or Perſons ſo buying, beſides the Goods and Commodities ſo brought, ſhall alſo forfeit treble the Value thereof, to be eſtimated as aforeſaid: But it is not intended that both Buyer and Seller ſhould forfeit, or be proſecuted for the ſame Goods; but that the Party, whether Buyer or Seller, who firſt proſecutes the other with effect for treble the Value of ſuch Goods, or Commodities, ſhall be diſcharged and acquitted from the like Forfeiture or Proſecution: But if a Proſecution be not commenced within one Month after making ſuch Seizure, either by the Seller or Buyer, *or* by the Party to whom ſuch Goods or Commodities ſhall be offered or expoſed to ſale, and afterwards carried on for determining the ſame, That then, and in every ſuch Caſe, the *Warehouſe-keeper*, in whoſe Cuſtody ſuch Goods ſhall be lodged, may proſecute for the Forfeiture thereof. AND every Conſtable, and other Miniſterial Officer of the Peace, who ſhall neglect or refuſe to go with the Officer of Exciſe, and ſhall not be preſent at the doing of any ſuch Act, where by Law the Preſence of a Conſtable, or other Peace-Officer,

* See *Page* 327. † See *Pages* 329, 334. ‡ See *Page* 327.

ficer, is or ſhall be neceſſary, ſuch Conſtable, Headborough, or other Miniſterial Officer of the Peace, ſhall forfeit 20*l.* AND it was further ordained, That if upon any Trial of any Information, Action, or Suit whatſoever, relating to the Cuſtoms or Exciſe, andy Queſtion ſhould ariſe, whether the Perſon be an Officer of, or for any of the ſaid Duties, *or* for any other Duties whatſoever; *or* touching any Seizure, Penalty, or Forfeiture relating to the ſaid Duties, or the Collection thereof; *or* if upon any Trial or Proſecution whatſoever, againſt any Perſon for any thing done in purſuance of any Laws relating to the ſaid Duties; *or* if upon any Trial for aſſaulting, or obſtructing any Officer of the Cuſtoms, Exciſe, or other Duties, in the Execution of his Office; *or* for reſcuing any Goods ſeized by ſuch Officer, any Queſtion ſhall ariſe, whether he be an Officer for any of the ſaid Duties, in all ſuch Caſes, Proof ſhall be admitted, that he was reputed to be, and in fact had exerciſed ſuch Office, without producing his Commiſſion. AND all Fines, Penalties, and Forfeitures then impoſed, ſhall be ſued for, and recovered, *or* mitigated, as by any other Law relating to the Exciſe; one Half to the King, the other Half to the Informer. AND if any Perſon whatſoever liable to the Duties on Soap, or to any Duties of Exciſe, in order to corrupt or prevail upon any Officer of Exciſe *, to do or perform any Act or Thing, contrary to his Duty; *or* to neglect or omit to do or perform any Act or Thing, which ſuch Officer ought to do; *or* to connive at, *or* conceal any Fraud relating to the Duties of Exciſe; in every ſuch Caſe the Offender ſhall forfeit 500*l.* for every ſuch Offence, to be ſued for, levied, recovered, and mitigated by ſuch Ways and Methods as any Forfeiture is ſued for, levied, recovered, or mitigated by any of the Exciſe Laws: one Half thereof to the King, the other Half to the Poor of ſuch Pariſh or Place where ſuch Offence ſhall be committed.

THE *very next* Year, *Anno* 1725, it having been found that the Penalties already inflicted for preventing the colluſive Seizures of foreign Goods had proved ineffectual, for the better preventing thereof, with reſpect to Tea, Coffee, Brandy, Rum, or other foreign Exciſeable Liquors, it was ordained, That the Commiſſioners of the Cuſtoms and Exciſe, or Inland Duties, ſhould cauſe all ſuch Goods, which ſhould be ſeized by any of their Officers for unlawful Importation, Non-payment of Duties, *or* for any other Cauſe of Forfeiture, to be proceeded againſt according to the Laws then in force; and the ſaid reſpective Commiſſioners may cauſe all ſuch Tea and Coffee, which ſhall be ſeized in the Limits of *London* or *Edinburgh*, and condemned to be ſold in thoſe Places, and all ſuch Tea and Coffee ſeized in any other Ports or Places within this Kingdom, after Condemnation to be brought to, and publickly ſold in the ſaid Cities of *London* or *Edinburgh* reſpectively. AND all ſuch foreign Brandy, Rum, or other Exciſeable Liquors, which ſhall be ſeized for Non-payment of Duties, *or* for being prohibited to be imported, and condemned, ſhall be publickly ſold to the beſt Bidder, at ſuch Places as they ſhall direct and appoint, notwithſtanding any Law or Uſage to the contrary: and the Officer of the Cuſtoms or Exciſe, or other Perſon, that makes ſuch Seizure, is to be allowed, for his Encouragement, one Third of the full Produce ariſing from the publick Sale, free from all Charges of Sale and Condemnation; and the Commiſſioners of the Cuſtoms are to pay into the *Exchequer* the remaining Part of the Produce of ſuch Seizure made by the Officers of the Cuſtoms, the Reward to the Officers and Charges of Condemnation being firſt ſatisfied, in

1725.

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* See *Page* 328.

lieu of his Majesty's Moiety, as then practised; and the Commissioners of Excise must pay the remaining Part of the Produce of such Sales of Seizures made by their Officers, after paying the Officer his Reward, and the Charges of Condemnation and Seizure, in the Manner as was then practised, in lieu of the King's Moiety. AND, to prevent Imbezzlements after Seizure, it was ordained, That no Officer of the Customs, or other Person shall be intitled to any Reward on any Seizure, unless he gives Notice to the next Officer of Excise, *or* to the Supervisor of the District, within 48 Hours after Seizure, who is obliged to take a particular Account of such Goods; and if they are afterwards removed, without a Permit signed by the proper Officer, or Supervisor of Excise, from whence they are to be removed, the said Goods shall be forfeited, and may be re-seized by any other Officer of the Customs, *or* by any Officer of Excise, and may be prosecuted, and recovered accordingly. AND if any Officer of the Customs, or Excise, deals in Tea, Coffee, Brandy, or other Exciseable Liquors, he shall forfeit 50 *l.* to any Person, who shall sue for the same, and also lose his Employment, and be rendered incapable of any Employment in the Revenue. AND in case any Question shall arise upon any Seizure of foreign Goods, whether the Duties have been paid, *or* whether they were lawfully imported, *or* legally compounded for, *or* condemned, the Proof thereof, in all such Cases, shall lie on the Owner * or Claimer, and not on the Officer, notwithstanding any Law to the contrary. SINCE, in pursuance of several Laws, Informations were exhibited before Justices of the Peace, on Account of Seizures made by the Officers of the Customs and Excise, of Goods clandestinely run, or prohibited, and of Vessels, Boats, Carriages, Horses and other Cattle, in order to their hearing and determining the same, it was ordained, That any *one or more* Justices of the Peace, where such Seizures are made, shall be impowered to administer an Oath to Persons skilled in the Nature of the Goods, Vessels, Boats, Carriages, or Horses, and other Cattle so seized, to view the same, and to make a Return of the Quantity, Quality, and Value thereof, which shall be publickly sold to the best Bidder, after Condemnation, at such Times and Places as the respective Commissioners aforesaid shall appoint. AND no Tobacco, Wines, Brandy, *East-India* or other Goods, or Commodities, whatsoever, shall be brought from the *Isle of Man* into *Great-Britain* or *Ireland*, *or* within the Limits of any Ports thereto belonging, *except* they are of the Growth, Product, or Manufacture of that Place, upon pain of forfeiting the Goods on board, together with the Ship, Vessel or Boat, Tackle, *&c.* whether Bulk have been broke or not; and every Person carrying such Goods on shore from such Vessel or Boat, *or* that is aiding and assisting therein, shall suffer six Months Imprisonment, *or* shall forfeit 100 *l.* at the Discretion of the Court where he is convicted of such Offence. AND if, after the 24th of *June* 1726, any foreign Goods are entered for Exportation, other than to the said *Isle of Man*, in order to obtain a Drawback, and are landed in the *Isle of Man*, the Merchant or Exporter shall forfeit the said Drawback, and also treble the Value of the Goods, and the Master of the Ship or Vessel shall be liable to the same Penalties, and six Months Imprisonment, without Bail or Mainprize.

AND, after the 24th of *June* 1726, no Gauger, or Officer of Excise, or of any other Duty, is to be subject to any Penalty of Forfeiture for not leaving a Copy of any Charge made by such Gauger or Officer, unless such Copy be required by the Trader in writing; 1726.

* See *Page* 326.

and no Action, Bill, Information, or Plaint lies againſt any Officer for having neglected to leave a Copy of the Charge *, unleſs the ſame ſhall be commenced before the 27th of *April* 1726. AND all the Forfeitures and Penalties hereby impoſed relating to the Revenue, under the Management of the Commiſſioners of Exciſe, may be recovered or mitigated by any other Laws now in force relating to the Revenue of Exciſe. *And* all the Fines and Forfeitures hereby impoſed, which relate to the Revenue under the Management of the Commiſſioners of the Cuſtoms, may be recovered by Action of Debt, Bill, Plaint, or Information, in the Courts at *Weſtminſter*, or *Exchequer* at *Edinburgh*, reſpectively. *And* all Penalties and Forfeitures for Offences committed in *Ireland*, ſhall be recovered as by any Law or Laws in force in *Ireland*, relating to his Majeſty's Revenue there; *and* one Half of all Forfeitures and Penalties now impoſed, ſhall go to the King, and the other Half to the Perſon who ſhall ſeize, inform, or ſue for the ſame, except in ſuch Caſes where it is hereby otherwiſe directed. AND if any Perſon is ſued or moleſted for putting the Premiſes in Execution againſt Offenders, he may plead the general Iſſue, and may give the ſpecial Matter in Evidence, and he ſhall have treble Coſts.

1728. THREE Years after, *Anno* 1728, for the more expeditious Diſpatch of Buſineſs at the chief Office of Exciſe in *London*, it was ordained, That all Complaints and Informations, which ſhould, on or after the 24th of *June* 1728, be depending at the chief Office of Exciſe, may be heard, adjudged, and determined by any *three* or more of the Commiſſioners of Exciſe; and ſuch Adjudication and Determination ſhall be valid in Law, as if it had been by *all or a Majority* of ſuch Commiſſioners for the Time being; and all ſuch Adjudications and Determinations, after the 24th of *June* 1728, may be executed by virtue of Warrants under the Hand and Seals of *any three* of the Commiſſioners, whether they ſhall be the particular Commiſſioners by whom ſuch Adjudication ſhall be made, *or* whether ſuch three Commiſſioners ſo ſetting their Hands and Seals to ſuch Warrant, were Commiſſioners at the particular Time when ſuch Adjudication ſhall happen to be made, provided they actually were Commiſſioners at the Time of ſetting their Hands and Seals to ſuch Warrant.

1733. FIVE Years after, *Anno* 1733, for the more effectual Execution, by the inferior Officers of the Cuſtoms, of the ſeveral Laws for preventing the running of Brandies, it was ordained, That when any ſuch Officer ſhall neglect to ſeize and proſecute any Veſſel, Boats, Horſes or other Cattle, or Carriage, which ſhall be forfeited by any of the Laws now in being, every ſuch Officer upon his Appearance, or Default, being thereof lawfully convicted, upon the Oath of *one or more* creditable Witneſſes, *or* by the Officer's Confeſſion, before one or more Juſtices of the Peace for the County, Diviſion, or Liberty where the Offence ſhall be committed, or the Offender ſhall be found, (which Oath one or more Juſtices are required to adminiſter) the Officer ſhall forfeit the Sum of 50 *l.* for every ſuch Neglect; one Half to the King, and the other Half to the Informer or Proſecutor; which Forfeiture is to be levied by Diſtreſs; and, for want of ſuch Diſtreſs, the Offender ſhall be committed to Priſon for the Space of ſix Months, there to remain without Bail or Mainprize.

1736. THREE Years after, *Anno* 1736; there having of late frequently appeared in great Gangs near the Coaſts of the Sea, the Shores of navigable Rivers, and divers other Places, many wicked and diſorderly Perſons carrying Fire-Arms †, or other offenſive Weapons,

* See *Pages* 243, 247, 248. † See *Pages* 329, 333.

Weapons, to the Terror of the King's Subjects, in order to be assisting in the clandestine running and carrying away prohibited and uncustomed Goods, and to secure the same after Seizure; *and* several Officers of the Excise and Customs, and their Assistants, having been wounded, *and* some of them murthered, *and* great Quantities of prohibited and uncustomed Goods having been rescued after Seizure, *and* civil Officers having been forcibly hindered in the Administration of Justice; to remedy such Practices for the future, it was ordained, That after the 24th Day of *June* 1736, upon Information made on Oath, that *three or more* Persons are assembled together, armed with Fire-Arms, or other offensive Weapons, for the Purposes aforesaid, before *one or more* Justices of the Peace, he may grant his Warrant to any Constable whatsoever for apprehending them; *and* if, upon Examination, such Justice shall find Cause, he may commit them to the County Gaol, without Bail, until they shall be discharged by due Course of Law; and upon Conviction of their being assembled and armed to assist in the running, landing, rescuing, or carrying away of any prohibited or uncustomed Goods, they shall be adjudged guilty of Felony, and shall be transported for seven Years; and if such Offenders return into *Great-Britain* or *Ireland* before the Expiration of such Term, they shall suffer Death. AND for the more effectual discovering such Offenders, every Person apprehending any Person guilty of the last mentioned Offences, is intitled to a Reward of 50*l.* to be paid in such Manner as hereafter is mentioned upon Conviction, and upon producing a Certificate from the Judge before whom such Offender was convicted. AND if any Person shall happen to lose any Limb, or an Eye*, or be otherwise maimed or dangerously wounded, in the apprehending, or in endeavouring to apprehend any such Offender, he shall receive the Sum of 50*l.* over and above any other Reward. AND if any Person is killed in apprehending, or endeavouring to apprehend such Offenders, 50*l.* shall be paid the Executors or Administrators of such Person, upon a Certificate under the Hands and Seals of the Judge of Assize, or of the two next Justices where the Fact was done, of such Person's being so killed; which Certificate, upon sufficient Proof made, he or they are required to give immediately, without any Fee or Reward. IT was also ordained, That if any such Offender should, within *three Months* after the Offence, and before his or their Conviction, discover to the Commissioners of the Customs or Excise in *England* or *Scotland*, respectively, *two or more* of their Accomplices, so that as *two* of them at least be convicted of such Offence, the Offender so discovering, shall have and receive a Reward of 50*l.* to be paid in such Manner as is hereafter mentioned, and shall be himself clearly discharged of such his Offence.

AND since all the Endeavours of the Legislature have not been able to prevent the carrying prohibited and uncustomed Goods through the Country, with an armed Force, to remedy which for the future, it was ordained, That if *two or more* shall be found passing together within *five* Miles of the Sea, *or* of any navigable River, with *one or more* Horses, *or* with any Cart or Carriages, wherein there shall be put or laden above six *lb.* of Tea, or above five Gallons of Brandy, *or* other Spirits, not having paid the Duty by Law charged thereon, and not having a Permit for the same, *or* any other foreign Goods or Commodities above the Value of 30*l.* Sterling, landed from any Ship or Vessel, and the Duty not paid, and shall carry any offensive Arms or Weapons, *or* being masked, *or* shall forcibly obstruct, assault, oppose, or resist any Officer of the Customs or Excise, in the seizing or securing any Sort of prohi-

* See *Pages* 326, 334, 335.

lited or run Goods, ſhall be deemed and taken to be Runners of foreign Goods. AND if any Queſtion ſhall ariſe upon any Seizure of foreign Goods, whether the Duties have been paid, or the ſame were lawfully imported, or legally condemned, the Proof thereof ſhall lie on the Perſons found with the Goods; and all Perſons convicted of carrying Goods in ſuch Manner, or for any of the ſaid Offences, ſhall be adjudged guilty of Felony, and ſhall be tranſported as Felons for ſeven Years; and if they return from Tranſportation before the Expiration of the Time, they ſhall ſuffer Death. AND all ſuch Goods, Wares, and Merchandizes found ſo carrying, together with the Cheſts, Boxes, Bags, Caſks, and other Package; *and* all Weapons, as well offenſive as defenſive, *and* all the Furniture of the Horſes, and other Cattle, and Carriages are loſt and forfeited. AND it was ordained, That if any Officer of the Cuſtoms or Exciſe, in the Excution of his Office, ſhall loſe any Limb, or an Eye, or be otherwiſe maimed or dangerouſly wounded, by any Offender laſt mentioned, in the Execution of the Duty of his Office, *or* if any ſuch Officer, or Perſon whatſoever, ſhall be maimed or wounded, as aforeſaid, in the apprehending, or endeavouring to apprehend any ſuch Offender, every ſuch Officer, or other Perſon, ſhall receive a Reward of 50*l.* over and above any other Reward, which he ſhall be intitled to: AND if any Perſon happens to be killed in taking or endeavouring to apprehend any ſuch Offender, then the Sum of 50*l.* ſhall be paid to the Executors or Adminiſtrators of the Perſon ſo killed, upon the Certificate of the Judge of Aſſize, or of the *two next* Juſtices, as aforeſaid, of ſuch Perſon's being killed, and this over and above any other Reward, which they may be intitled to*. AND any Perſon diſcovering his Accomplices to the Commiſſioners of the Cuſtoms or Exciſe in *England* or *Scotland* reſpectively, within three Months after any of the ſaid Offences laſt before mentioned, ſhall have been committed, he ſhall receive 50*l.* for each Offender ſo diſcovered, and convicted, over and above any other Reward or Recompence, which he may be intitled to by any Law or Statute then in force. AND the Commiſſioners of the Cuſtoms and Exciſe, in *England* and *Scotland* reſpectively, are enjoined to cauſe the ſeveral Rewards, before mentioned, to be paid to the Perſons intitled thereth, as aforeſaid, by the Receiver-General, Caſhier, or other proper Officer of the Cuſtoms and Exciſe, upon producing a Certificate under the Judge of the Court's Hand where the Offender was convicted. *And* if any Diſputes ſhall ariſe between the Perſons intitled to any of the ſaid Rewards, the Commiſſioners of the Cuſtoms or Exciſe reſpectively, or the major Part of them, are to adjuſt their ſeveral Shares and Proportions; and the Money ſo paid by any Receiver-General, Caſhier, or other Officer, as aforeſaid, ſhall be allowed in his Accounts as ſo much Money paid to his Majeſty. AND any *one or more* Juſtices of the Peace in any County, City, or Liberty whatſoever, upon Information made upon Oath, that any Perſon or Perſons are lurking, waiting or loitering within *five* Miles from the Sea Coaſt, or from any navigable River, and that there is reaſon to ſuſpect it is with an Intent to aid or aſſiſt in landing, running, or carrying away of any prohibited or uncuſtomed Goods, every ſuch Juſtice may grant his Warrant to bring ſuch Perſon or Perſons before him; and if they ſhall not give a ſatisfactory Account of themſelves, and their Callings and Employments, that they are not concerned in the carrying on any clandeſtine or unlawful Trade or Buſineſs, and were not at ſuch Place, with Intent to carry on any clandeſtine Practices, every ſuch

* *See alſo* the Ordinance of 1746.

such Person, who shall not give such Satisfaction to such Justice, shall be sent to the House of Correction, and there whipped and kept to hard Labour, for any Time not exceeding one Month, and the Commissioners of the Customs or Excise respectively, are to pay 20*s.* *per* Head to the Informers, as a Reward for every such Offender so taken. *But* if any such Person so apprehended desires Time to make it appear that he is not concerned in such clandestine Practices, he shall not be punished by Whipping, but shall be committed to the common Gaol till Proof is made to the Satisfaction of such Justice, or sufficient Security given as shall be approved by him, that he shall not be guilty of any of the said clandestine Offences. AND if any Person shall offer any Tea, Brandy, Arrack, Rum, or other Strong-Waters, or Spirits, not having a Permit; or if any Hawker, Pedlar, Petty Chapman, *or* other Trading Person, going from Town to Town, *or* to other Mens Houses, within the Kingdom of *Great-Britain*, shall offer to sale any Tea, Brandy, or other Spirits, *notwithstanding he has a Permit for the same*, the Person to whom the same shall be so offered to sale, may lawfully seize and detain such Tea, Brandy, or Spirits, and carry them to the next Ware-house for the Customs or Excise, and take the Person so offering such Goods to sale before *any* Justice of the Peace, to be committed to Prison, and prosecuted for the Penalties and Forfeitures incurred by his Offence; and the Person who seized such Goods, may prosecute in his own Name *.

AND after Condemnation of the Goods, and Commitment of the Person so offending, the Person so seizing shall be intitled to *a third Part* of the gross Produce of the Sale of such Goods; *and* the Commissioners of the Customs or Excise respectively, upon a Certificate from the Justice of such Offender's being committed to Prison, may advance to the Prosecutor, if he shall desire it, 1*s.* for every Pound of Tea, and 1*s.* for every Gallon of Brandy so seized, till the Goods can be sold; and, after the Sale of such Goods, the Money so advanced shall be replaced out of the Produce of such Sale. AND if any run or prohibited Goods shall be found carrying, or in the Custody of any Waterman, Carman, Porter, or other Person whatsoever, knowing the same to be either prohibited, or to have been clandestinely run or imported, and who being thereof lawfully convicted, upon the Oath of *one or more* creditable Witnesses, or by the Confession of the Party, before *one or more* Justices of the Peace of the County, Division, or Liberty where such Offence shall be committed, or the Offender found, he shall forfeit treble the Value of such Goods so found and seized; one Half to the Informer, and the other Half to the Poor of the Parish where the Offence shall be committed; to be levied by Distress and Sale of the Offender's Goods or Chattles; and, for want of such Distress, every such Offender shall be committed to the House of Correction, to be whipped, and kept to hard Labour for any Time not exceeding *three* Months.

IT was at the same Time likewise ordained, That all Ships or Vessels whatsoever, arriving from foreign Parts, having on broad 6*lb.* of Tea, *or* any foreign Brandy, Arrack, Rum, Strong-Waters, or other Spirits whatsoever, in Casks under *sixty* Gallons, (except only for the Use of the Seamen then on

* By 12 *Geo.* I. all Informations brought in the Courts at *Westminster*, for the Recovery of any Penalty by the Laws of the Customs or Excise, must be in the Name of the Attorney General, or some Officer of the Revenue.

board ſuch Ship or Veſſel, and this muſt not exceed *two* Gallons* for each Seaman,) which ſhould be found at Anchor, *or* hovering within the Limits of any Port within this Kingdom, *or* within *two Leagues* of the Shore, *or* ſhould be diſcovered to have been within the Limits of any Port, and not proceeding in her Voyage, Wind and Weather permitting, unleſs it be in caſe of unavoidable Neceſſity, and Diſtreſs of Weather, of which the Maſter or other Perſon, having Charge or Command of the Ship or Veſſel, muſt give immediate Notice, and make Proof of before the Collector, or principal Officer of the Port; all ſuch Tea, foreign Brandy, Arrack, Rum, Strong-Waters, and Spirits, together with the Cheſts, Boxes, Caſks, and other Package whatſoever, *or* the Value thereof, ſhall be forfeited, whether Bulk ſhall have been broken or not; and the Goods and Package muſt be ſeized and proſecuted, *or* the Value thereof be ſued for, by any Officer of the Cuſtoms or Exciſe, in ſuch Manner as is hereafter directed. AND if any foreign Goods, after the 29th of *September* 1736, ſhall, by any Ship, Boat, or Veſſel whatſoever, be taken in at Sea, *or* put out of any Ship or Veſſel whatſoever, within four Leagues of any Part of the *Britiſh* Coaſts, without Payment of Cuſtoms, and other Duties payable for the ſame, (unleſs it be in caſe of apparent Neceſſity) or ſome other lawful Reaſon, of which the Maſter, or other Perſon, having the Charge of ſuch Ship, Veſſel or Boat, taking in the ſame, ſhall give immediate Notice, and make Proof before the chief Officer of the Cuſtoms of the firſt Port where he ſhall arrive in this Kingdom, all ſuch Goods are forfeited, and the Maſter, or other Perſon, having Charge of ſuch Ship, Veſſel or Boat, ſo unſhipping, or receiving the ſame, forfeits treble the Value thereof: *And* all the Veſſels into which the ſaid Goods ſhall be unſhipped, are forfeited and loſt, if the Burthen of ſuch Ship, Boat or Veſſel, exceed not 100 Tuns †; *and* the Maſter, or other Perſon, taking Charge of ſuch Ship or Veſſel, out of which ſuch Goods are taken, as aforeſaid, forfeits treble the Value of the Goods ſo unſhipped. IT was alſo further ordained, That if any Perſon whatſoever ſhould offer to bribe, recompenſe, or reward any Officer of the Exciſe or Cuſtoms to connive at, or permit any Goods to be run on ſhore; or to connive at any falſe or ſhort Entry; *or* to do any other Act whereby the Crown may be defrauded in its Revenues, ſuch Offender, whether the Offer be accepted or not, ſhall forfeit 500*l.* for every Offence ‡; one Half of which ſhall be to the Uſe of the Crown, the other Half to the Uſe of the Perſon or Perſons who ſhall inform, proſecute, or ſue for the ſame; except it be in ſuch Caſes where any other Diſtribution of the ſaid Penalties is otherwiſe appointed; *and* all the ſaid Penalties and Forfeitures are to be proſecuted and ſued for in the Court at *Weſtminſter*, or in the Court of *Exchequer* in *Edinburgh* reſpectively, *except* where it is directed otherwiſe. AND, for the more impartial Trial of any Indictment or Information, for aſſaulting any Officer of the Cuſtoms or Exciſe, it was then ordained that all ſuch Offences may be tried in any County of *England*, in ſuch Manner and Form, as if the Offence had been there committed.

AND

* See *Pages* 215 and 216.

† And for preventing Diſputes concerning the Meaſurement of *ſuch* Ships, the following Rule is enjoined by Law: that is to ſay,

'Take the Length of the Keel within board, (ſo much as ſhe treads on the Ground) and 'the Breadth within board by the Midſhip-Beam, from Plank to Plank, and half the Breadth 'for the Depth; then multiply the Length by the Breadth, and that Product by the Depth, 'and divide the Whole by 94, the Quotient will give the true Content of the Tonnage.'

‡ See *Page* 322.

AND since it has been experienced, that, in Ships from foreign Parts, Goods are frequently concealed in false Bulk-heads, between the Linings and false Knees, *or* in concealed Lockers, *or* in the Ballast, *or* false Package and other private Places, which the Officers cannot easily discover; and this is done in order to run the Duty; and there being no Law then in force, that subjects such Goods to Forfeiture, unless they are found concealed by the proper Officer, after clearing the Ship; to prevent such Practices for the future, it was ordained, That all Goods, which should be found concealed in any Place on board any Ship, or Vessel, at any time after the Master's Report at the Custom-House, shall be forfeited, and may be seized; and if it can be made appear, that the Master, or other Person, having the Charge or Command of such Ship, or Vessel, was any ways consenting, or privy to such Concealment, such Master, or other Person, shall forfeit treble the Value of the Goods so found, to be recovered as before directed. AND every Person or Persons whatsoever, forcibly obstructing, beating, wounding, or opposing any Officer of the Customs or Excise, on board any Ship, Boat or Vessel, in the Discharge of his Duty, either in the Day or Night; and all such who shall act in their Aid and Assistance, being convicted thereof, shall be transported, as other Felons, for any Term not exceeding seven Years: And if the Offender returns into *Great-Britain* or *Ireland* before the Time for which he was transported shall be expired, he shall suffer Death. AND it is now lawful for any Officer of the Customs or Excise, producing his Warrant, or Deputation, (if required) to go on board and enter into any Coasting Ship or Vessel, within the Limits of any of the Ports of this Kingdom, and to rummage and search the Cabbin, and all other Parts, for Goods which are uncustomed and prohibited; and they are impowered to remain on board all such Ships and Vessels, during their Stay within the Limits of the Port: *And* if any Person does obstruct, molest, or hinder any Officer in going or continuing on board any Coasting Ship or Vessel, *or* in searching the Cabbin, or any other Part thereof, every such Person forfeits 100*l.* for every such Offence, to be recovered and distributed as is before directed.

AND if any Person keeping any Tavern, Ale-house, Victualling-house, or any other House, where any Ale, Wine, Brandy, or other strong Liquors, is sold by retail, shall knowingly receive, harbour, or entertain any Person against whom any Process of Arrest hath issued, for having beat, abused, or obstructed any Officer of the Customs or Excise in the Execution of his Office, *or* for any other Offence whatsoever committed against any Law then in being, for preventing Frauds in the Customs or Excise, *or* for any Crime whatsoever, that shall be committed or done in prejudice of the said Revenue, and to which Process the Sheriff, or other Officer having Execution thereof, shall have returned that such Person is not to be found; or who shall knowingly harbour, receive, *or* entertain any Person, who has been in Prison for any of the said Offences, and shall have made his Escape; *or* having been convicted for the same, shall fly from Justice, shall forfeit 100*l.* to be recovered, and divided as is before directed; and he shall be rendered incapable of having a Licence, or of keeping any Tavern, Ale-house, or Victualling-house, or selling Wine, Ale, Brandy, or other Strong Liquors by retail for the time to come. *But* then no Person can be liable to any Penalty for harbouring, *&c.* any Person as aforesaid,

ſaid, unleſs there has been *ſix Days* Notice given in *two* ſucceſſive *Gazettes*, that the Perſon ſo harboured has abſconded; and alſo, by a Writing to be fixed to the Door of the Pariſh-Church, where ſuch Perſon laſt dwelt before his Abſconding. AND to prevent the Offender's having any Correſpondence with the Bailiffs, and other Officers, who have the Execution of any Writ of Proceſs againſt them, it was ordained, That every Sheriff, Mayor, Bailiff, or other Perſon, and their Deputies, having the Execution of Proceſs in any County, City, or Liberty, againſt any Perſon proſecuted for any Offence contrary to any of the Laws then in being, relating to the Cuſtoms or Exciſe, were reſpectively enjoined, upon Requeſt of a known Sollicitor for the Cuſtoms or Exciſe, to grant ſpecial Warrants to ſuch Perſons as ſuch Sollicitor for the Cuſtoms or Exciſe ſhould deſire, in writing upon the Back of the Proceſs for apprehending ſuch Offender; and in Default thereof, ſuch Sheriff, Mayor, *&c.* or the Perſon acting in the Office reſpectively, ſhould be liable to a Proceſs of Contempt, as if he had neglected or refuſed to have executed the like Proceſs in the common Method of Proceeding: *And* it was ordained, That all Sheriffs, Mayors, *&c.* as aforeſaid, ſo making out ſuch eſpecial Warrant, ſhould be ſaved harmleſs from all Eſcapes, and from all Actions and Proceedings by reaſon thereof; and alſo, which ſhould happen from the Time of taking ſuch Offender, till he ſhould be committed to the proper Gaol or Priſon, or tendered to the Perſon having Charge thereof, who is enjoined to receive every ſuch Offender, and to give a Receipt for his Body. AND that for the future, that there may not be any Failure of Juſtice, for want of the Officer's proving the exact Form of Words made uſe of at making of any Seizure, it was ordained, That all Judges and Juſtices of the Peace, in all Trials of any Seizures whatſoever, ſhould proceed to the Merits of the Cauſe, without inquiring into the exact Form or Manner of making ſuch Seizures*. AND whereas deſperate and evil-minded Perſons have frequently, with an armed Force, and in a public and avowed Manner, paſs'd and repaſs'd through ſeveral Counties with large Quantities of Tea, Brandy, and other prohibited and uncuſtomed Goods, and deterr'd the Officers of the Cuſtoms and Exciſe from doing their Duty; *or* have beat, wounded, maimed, or murdered them in the Diſcharge thereof: In order to put a Stop to ſuch Practices, it was ordained, That if any Perſon paſſing with prohibited or uncuſtomed Goods, or armed with Guns, Piſtols, or other offenſive Weapons, ſhould violently reſiſt any Officer of the Cuſtoms or Exciſe, or their Aſſiſtants, in the Execution of their Duty, it ſhould be lawful for the Officers of the Cuſtoms or Exciſe, and their Aſſiſtants, to oppoſe Force to Force; and if ſuch Officers, or any one acting in their Aſſiſtance, ſhould wound, maim, or kill any Perſon ſo reſiſting them in the Execution of their Duty, the Officers, and their Aſſiſtants, may plead the general Iſſue, and give the ſpecial Matter in Evidence in his or their Defence; and if they are brought before any Juſtice of the Peace, on account of ſuch killing, wounding, or maiming, the Juſtice is enjoined and required to admit every ſuch Perſon and his Aſſiſtants to Bail. AND it was further ordained, That if any Perſon ſhould be proſecuted for having done any thing in relation to the Premiſes, he might plead the general Iſſue, and give the ſpecial Matter in Evidence, and he ſhould recover treble Coſts; and in caſe of a Verdict ſhould have the like Remedy for the ſame, as Defendants have in other Caſes.

ABOUT

* See *Page* 226, Part II.

ABOUT nine Years after, *Anno* 1745, the Legiſlature finding that notwithſtanding the ſeveral Ordinances already made to prevent the unlawful Importing and clandeſtine Landing and Running of Goods, divers wicked and evil-diſpoſed Perſons did ſtill continue to carry on ſuch illegal Practices, to the great Diminution of the public Revenue, and to the manifeſt Prejudice of the fair Traders, and had likewiſe ſeduced great Numbers of other Perſons to join with them in the ſaid wicked Practices; yet nevertheleſs, as there might be ſome Hope that many of the ſaid Perſons who have been unwarily ſeduced, might be reclaimed by Grace and Clemency from offending in the like Manner for the future: Therefore, for the Quiet and Eaſe of his Majeſty's Subjects who might have been guilty of ſuch Offences, and that ſuch of them as are not yet become incorrigible, being freed from their Fears and Apprehenſions, might be induced to leave off their illegal Practices, and to return to their lawful Callings and Occupations; and that ſuch Perſons as ſhould, after ſuch an Act of Indulgence and ſo public a Warning, preſume to commit any of the ſaid Offences, might be left without Excuſe, and be brought to Juſtice, and duly puniſhed as their Crimes ſhould deſerve. It was ordained that all Perſons who before the *firſt* Day of *May*, 1745, had incurred any Penalty or Forfeiture by the clandeſtine running, landing, unſhipping, concealing or receiving any prohibited Goods, Wares, or Merchandizes, or any foreign Goods, liable to the Payment of the Duties of Cuſtoms and Exciſe, or either of them, and who were or might be ſubject to any Information, or other Proſecution whatſoever, for the Penalties for the running, landing, unſhipping, concealing, or receiving thereof, or for landing of any Goods without the Preſence of an Officer, ſhould be acquitted, indemnified, releaſed, and diſcharged, againſt the King's Majeſty, his Heirs, and Succeſſors, and againſt all and every other Perſon and Perſons, from all Penalties, Forfeitures, Indictments, Outlawries, Convictions, and Judgments incurred, had, or given, or that might ariſe or accrue for, or by reaſon or means of any the ſaid Offences, or other Matters or Things herein before mentioned and expreſſed. AND it was ordained that any Perſon might plead this Ordinance for their Diſcharge without any other Fee than only 16*d.* for entering the Plea. But then all Suits againſt Officers of the Cuſtoms, Exciſe, *&c.* are to be diſcharged, before any Perſon or Perſons ſhould claim Benefit by this Ordinance; and that any one's Claiming the Benefit of this Ordinance ſhould be deemed a Diſcharge or Releaſe to ſuch Officers from all ſuch Suits with Coſts. BUT it is provided that all Perſons that ſhould offend after they have taken the Benefit of this Ordinance, and ſhould afterwards be guilty of, or commit any of the like Offences, Treſpaſſes, Frauds, or Miſdemeanors as before mentioned, or hereby intended to be acquitted, releaſed, or diſcharged, or any of the Offences hereafter in this Ordinance mentioned or expreſſed, ſhould be ſubject and liable to be proſecuted, not only for, or in reſpect of ſuch new Offence by him, her, or them committed, but ſhould alſo for, and in reſpect of the ſaid Offences committed before the making this Ordinance, and for all Bonds and Securities by them or any of them given for his Majeſty's Uſe, commonly called Smuggling Bonds, be ſubject and liable to all and every the ſame Pains, Penalties, Forfeitures and Actions, for Duties of Cuſtoms or Exciſe, and Actions upon the ſaid Bonds and Securities, as he, ſhe, or they would have incurred, or been ſubject or liable to, in caſe this Ordinance had never been made. BUT it was provided

1745.

that nothing in this Ordinance contained ſhould extend to acquit, releaſe or diſcharge any Judgment or Judgments, where the Monies or other things recovered have been actually levied, or the Parties taken in Execution upon ſuch Judgments before the firſt Day of *May*, 1745; nor ſhould it extend to acquit, releaſe, or diſcharge any Judgment in reſpect to ſuch Part thereof as belongs to the Informer, until ſuch Perſon or Perſons, who would take the Benefit of this Ordinance, ſhould pay to ſuch Informer the full Coſts of Suit. AND it was further ordained, that if any Perſon had been guilty of any of the Offences herein before mentioned, for which any ſuch Perſons are by any Law now in being liable to be tranſported as a Felon, ſhould for any of the ſaid Offences take or receive the Benefit of this preſent Ordinance, and ſhould afterwards commit any of the ſaid Offences, for which he is now liable to be tranſported as aforeſaid, that then ſuch Perſon ſhould be adjudged guilty of Felony, and ſhould ſuffer Death as in Caſes of Felony, without Benefit of the Clergy. AND it was provided that all Perſons who had before the firſt of *May*, 1745, agreed to pay any Sum of Money by way of Compoſition to his Majeſty, or in reſpect of any of the above-mentioned Offences, ſhould make good ſuch Compoſition and Agreements as they have made; or elſe ſhould be excluded all Benefit and Advantage from this Ordinance.

THE Legiſlature, finding the Laws againſt Smuggling ſtill ineffectual, ordained, that if any Perſons to the Number of three, or more, armed with Fire-Arms or other offenſive Weapons, ſhould from and after the 24th Day of *July*, in the Year of our Lord 1746, be aſſembled in order to be aiding and aſſiſting in the illegal Exportation of *Wool* or other Goods prohibited to be exported, or the carrying of *Wool*, or other ſuch Goods, in order to ſuch Exportation, or in the running, landing, or carrying away prohibited or uncuſtomed Goods, or Goods liable to pay any Duties, which have not been paid or ſecured, or in the illegal relanding of any Goods whatſoever, which have been ſhipped or exported upon Debenture or Certificate; *or* in reſcuing or taking away the ſame after Seizure, from any Officer or Officers of the Cuſtoms or Exciſe, or other his Majeſty's Revenue, or other Perſon or Perſons employed by him or them, or aſſiſting him or them, or from the Place where they ſhould be lodged by him or them; or in reſcuing any Perſon who ſhould be apprehended for any of the Offences made Felony by this or any other Ordinance, relating to the Revenues of Cuſtoms or Exciſe; or in preventing the apprehending any Perſon, who ſhould be guilty of any ſuch Offence; *or* in caſe any Perſons to the Number of *three or more*, ſo armed as aforeſaid, ſhould after the ſaid 24th Day of *July*, be ſo aiding or aſſiſting, or if any Perſon ſhould, from and after the ſaid 24th Day of *July* 1746, have his Face blacked, or wear any Vizard, Maſk, or other Diſguiſe, when paſſing with ſuch Goods, or ſhould forcibly hinder, obſtruct, aſſault, oppoſe, or reſiſt any of the Officers of the Cuſtoms or Exciſe, or other his Majeſty's Revenue, in the ſeizing or ſecuring any ſuch Goods; or if any Perſon or Perſons, from, and after the ſaid 24th Day of *July*, in the Year aforeſaid, ſhould maim, or dangerouſly wound any Officer of the Cuſtoms or Exciſe, or any other his Majeſty's Revenue in his attempting to go on board any Ship or Veſſel, within the Limits of any of the Ports of this Kingdom, or ſhoot at, maim, or dangerouſly wound him, when on board ſuch Ship or Veſſel, and in the due Execution of his Office or Duty, then every Perſon ſo offending, being thereof lawfully convicted, ſhould be adjudged

1746.

adjudged guilty of Felony, and ſhould ſuffer Death as in Caſes of Felony, without Benefit of the Clergy. AND that all and every Perſon and Perſons who ſhould at any Time be convicted of any of the Offences afore-mentioned, within that Part of *Great-Britain* called *Scotland*, ſhould for every ſuch Offence, incur and ſuffer the Pains of Deaths and Confiſcation of Moveables. AND, for the more ſpeedy bringing of ſuch to Juſtice, it was ordained, that if any Perſon or Perſons ſhould be charged with being guilty of any of the Offences aforeſaid, before any one or more Juſtices of the Peace, or before one of the Juſtices of the Court of *King's-bench*, if the Offence be committed in *England*; or before the Lord Juſtice General, or one of the Lords of Juſticiary, or one or more Juſtices of the Peace in *Scotland*, if the Offence be committed in *Scotland*; by the Information of one or more credible Perſon or Perſons, upon Oath, by him or them to be ſubſcribed, ſuch Juſtice of the Peace, or Juſtice of the *King's-bench*, or Lord Juſtice General, Lord Juſtice Clerk, or Lord of Juſticiary reſpectively, before whom ſuch Information ſhould be made as aforeſaid, ſhould forthwith certify under his Hand and Seal, and return ſuch Information to one of the principal Secretaries of State, who is to lay the ſame before the King in Council, and an Order to be then made for the Offender's Surrendering in 40 Days, and to be committed to Gaol without Bail or Mainprize; which Order * is to be publiſhed in *two* ſucceſſive Gazettes, and tranſmitted to the Sheriff, who muſt proclaim the ſame in *two* Market Towns, near to the Place where the Offence ſhould be committed, and affix a Copy on ſome publick Place in ſuch Market Towns: And, in caſe ſuch Offender do not ſurrender himſelf purſuant to ſuch Order of the King in Council, ſuch Offender ſo neglecting or refuſing to ſurrender, as aforeſaid, or eſcaping after ſuch Surrender, ſhould, from the Day appointed for his Surrender as aforeſaid, be adjudged to be convicted of Felony, and ſhould ſuffer Pains of Death, as in Caſes of a Perſon convicted and attainted by Verdict and Judgment of Felony, without Benefit of the Clergy. And the Court of *King's-bench*, or Juſtices of *Oyer* and *Terminer*, is to award Execution againſt ſuch Offenders. AND it was farther ordained, That all Perſons who ſhould harbour, receive, conceal, aid, abet, or ſuccour ſuch Offenders, after the Time appointed for their Surrender, ſhould be tranſported as Felons for ſeven Years; and if they return before Expiration of the ſaid term, they ſhould ſuffer Death as Felons, without Benefit of the Clergy. AND it was alſo ordained, That if any Officer of the Revenue, or other Perſons, being employed in the ſeizing, conveying, or ſecuring any *Wool*, or other Goods forfeited, on Account of their being prohibited or uncuſtomed Goods, or on Account of the Duties chargeable thereon not having been paid or ſecured, or by Virtue of any Law made to prevent the Exportation of *Wool*, or other Goods, or in endeavouring to apprehend any Offender againſt this Ordinance, ſhould be beat, wounded, maimed, or killed by any Offender againſt this Ordinance; or the ſaid *Wool*, or other Goods, ſo ſeized, ſhould be reſcued by Perſons armed as aforeſaid; in all ſuch Caſes, the Inhabitants of every Rape, Lath, or Hundred, where ſuch Fact ſhould be committed, are to make good the Damages, and to pay to the Executor or Adminiſtrator of each Perſon killed 100 *l.* For each Perſon beat, wounded, or maimed, 40 *l.* For Loſs of Goods 200 *l.* which is to be rateably and proportionably taxed upon the Rape, Lath, or Hundred, hereby made liable to Damages as in Caſes of Robberies. BUT it is provided, that no Perſon ſhould recover any Damages for ſuch Beating, Wounding,

* See the Form on *Page* 337.

Wounding, Maiming, or Loſs of Goods, unleſs he ſhould, within four Days after ſuch Injury, cauſe Notice to be given of ſuch Offence being committed, unto two or more of the Inhabitants of ſome Town, Village, or Hamlet, near to the Place where ſuch Fact was committed, and ſhould, within eight Days after ſuch Fact, declare upon Oath, before ſome Juſtice of the Peace, of the County, Liberty, or Diviſion, where the ſame was committed; which Examination every ſuch Juſtice is obliged to take, whether the Perſon ſo examined did know the Perſon or Perſons, who committed ſuch Fact, or any of them; and if upon ſuch Examination it be declared, that he or they knew the Perſon or Perſons, or any of them, then he is to be bound by Recognizance to proſecute ſuch Offender or Offenders, according to Law; and no ſuch Perſon is to recover any Damages, unleſs he, over and beſides the ſaid Notice and Recognizance herein before required, give ſuch Notice, and enter into ſuch Recognizance, as Perſons robbed are directed to give and enter into, in Order to enable them to maintain Actions upon the Act of the eighth Year of the Reign of his preſent Majeſty. But if the Offender ſhould be apprehended and convicted of ſuch Offence, within the Space of *ſix* Calendar Months after the Offence committed, no Hundred, Rape, or Lath, ſhould be in any wiſe ſubject to make any Satisfaction for ſuch Damages, or to pay the ſaid 100*l.* to the Executors or Adminiſtrators of ſuch Perſon killed as aforeſaid. AND all Actions againſt any Hundred, Rape, or Lath, muſt be brought within twelve Months after the Offence committed. AND for the more effectual diſcovering and apprehending ſuch Offenders in that Part of *Great-Britain*, called *England*, who have been advertiſed in the Gazette as aforeſaid, and have not ſurrendered within *forty Days*, it was ordained, That, from and after the 24th Day of *July* 1746, every Perſon and Perſons, who ſhould apprehend and take, or diſcover ſo that he may be taken, any Perſon ſo advertiſed as aforeſaid, who ſhall not have ſurrendered himſelf within forty Days, and cauſe him to be brought before one of the Juſtices of the Court of *King's-bench*, or any Juſtice of the Peace for *London* or *Middleſex*, (who is hereby required to commit ſuch Perſon to the Priſon of *Newgate* for ſuch Felony) ſhould have and receive, for every ſuch Perſon, who ſhould be ſo apprehended, the Sum of *Five-hundred Pounds*, to be paid within one Month after Execution ſhould be awarded againſt ſuch Offender, by the Commiſſioners of the Cuſtoms or Exciſe reſpectively, who are required to receive the Applications of all who are concerned in diſcovering or apprehending ſuch Offender, and determine who are intitled to the ſaid Reward, and their reſpective Shares and Proportions thereof; and the ſame is to be divided amongſt ſuch Perſons, in ſuch Shares and Proportions, as to the Commiſſioners of the Cuſtoms or Exciſe reſpectively, or to the major Part of them, ſhould ſeem reaſonable. AND if any ſuch Offender, againſt whom no ſuch Order of Council had been made, ſhould himſelf ſo diſcover or apprehend any other Offender, againſt whom ſuch Order ſhall have been made, he is to be diſcharged and acquitted of ſuch his own Offence, and all other the like Offences then before committed, and for which no Proſecution had been then commenced, and ſhould alſo have his Share of the Reward. AND if any Perſon ſhould loſe a Limb or an Eye, or be otherwiſe grievouſly maimed or wounded in the apprehending, or endeavouring to apprehend, or making Purſuit after ſuch Offenders, every Perſon ſo wounded and maimed as aforeſaid, upon Application to the Commiſſioners of the Cuſtoms or Exciſe reſpectively as aforeſaid,

aforesaid, shall have and receive the Sum *of Fifty Pounds*, over and above any other Reward that he may be intitled to, as an Apprehender, by Virtue of this Ordinance. AND in case any Person should be killed in the taking or apprehending, or endeavouring to apprehend, or in making Pursuit after any such Offenders, that then the Executors or Administrators of such Person so killed as aforesaid, upon Application to the Commissioners of the Customs or Excise respectively, as aforesaid, and laying sufficient Proof before them, of such Person being killed, as aforesaid, is to have and receive the Sum of 100 *l.* all which Rewards before mentioned are to be paid to the several and respective Persons, who should become intitled thereto as aforesaid, by the Receiver-General of the Customs, or Cashier of the Excise respectively, upon an Order directed to them, for that Purpose, by the Commissioners of the Customs or Excise. AND it was further ordained, that if any Offender, in that Part of *Great-Britain* called *England*, at any Time before the King's Order in Council be made, requiring him to surrender within the Space of forty Days, should discover *two or more* of his Accomplices to the Commissioners of the Customs or Excise in *England* respectively, and apprehend them, or cause them to be apprehended, so as they, or two of them at least, be brought to Justice, and convicted of such Offence, the Offender or Offenders so discovering should have and receive the Sum of Fifty Pounds for every such Offender so discovered and convicted, as a Reward for such Discovery; and that every such Person so discovering should be clearly acquitted and discharged of such their Offence, and all other the like Offences then before committed, for which no Prosecution should have been then commenced: Which said Reward is to be paid in such Manner as before is mentioned, with respect to the Reward for apprehending. AND in Consideration that the Ordinances for securing the Revenues of Customs and Excise are inforced for the future by these new Penalties and Provisions, which ought most rigorously and strictly to be put in Execution; It was ordained that any Offences herein described, committed before the 24th of *June* 1746, should be pardoned, if the Offender do, before he shall be apprehended for the same, and before the 29th Day of *September* 1746, enter himself with some Commission Officer of his Majesty's Fleet, to serve as a common Sailor in the said Fleet, and do, for one Year at least, from the Time of such Entry, actually serve and do Duty as such in the said Fleet, and shall also, before the said 29th of *September*, register his Name, Employment, and usual Place of Abode, with the Clerk of the Peace of the County, Riding, or Division where he resides. BUT it is provided that every Person who should make such Entry with the Clerk of the Peace, and claim the Benefit of this present Ordinance as aforesaid, and should afterwards commit any of the like Offences as those before mentioned, or hereby intended to be acquitted, released, or discharged, or shall at any Time after desert from the said Service, or within the said Year procure his Discharge therefrom, shall be liable to be prosecuted, not only for, or in in respect of such new Offence, but should also be subject and liable to all the same Pains, Penalties, and Forfeitures, as he would have incurred, or been subject or liable to, in case this Indemnity had never been given. AND that if any Officer of the Navy should, by false Muster or Certificate, or by any other collusive or evasive Ways or Means whatsoever, permit such Person to avoid the actual Service, as aforesaid, such Person should not only lose the Benefit of this Indemnity, but every

every ſuch Officer ſhould ſuffer the Penalty of 500 *l.* AND it was further ordained, that in caſe any Information ſhould be commenced and brought to Trial, on Account of the Seizure of any Ships as forfeited for illegally carrying Goods, or of any Wool, Goods, Wares, or Merchandizes, as prohibited or uncuſtomed, or illegally carried or exported, or intended or attempted to be exported, or as illegally relanded, after having been ſhipped or exported upon Debenture or Certificate, wherein a Verdict ſhould be found for the Claimer thereof, and it ſhould appear to the Judge or Court, before whom the ſame ſhould be tried, that there was a *probable* Cauſe of Seizure, that then ſuch Judge or Court ſhould certify on the Record, that there was a probable Cauſe for the Proſecutor's ſeizing the ſaid Ship or Goods; and in ſuch Caſe that the Defendant ſhould not be intitled to any Coſts of Suit whatſoever, nor ſhould the Perſon who ſeized the ſaid Ship or Goods be liable to any Action, Indictment, or other Suit or Proſecution on Account of ſuch Seizure; and that in caſe any Action, Indictment, or other Proſecution, ſhould be commenced and brought to Trial againſt any Perſon whatſoever, on Account of the Seizure of any ſuch Ship, or of any Wool, Goods, Wares, or Merchandizes, as prohibited or uncuſtomed, or as illegally carried or exported, or intended or attempted to be exported, or illegally relanded, as aforeſaid, wherein a Verdict ſhould be given againſt the Defendant or Defendants, if the Court or Judge, before whom, ſuch Action or Proſecution ſhould be tried, ſhould certify on the ſaid Record, that there was a probable Cauſe for ſuch Seizure, then the Plaintiff, beſides his Ship or Goods ſo ſeized, or the Value thereof, ſhould not be entitled to above *two Pence* Damages, nor to any Coſts of Suit; nor ſhould the Defendant in ſuch Proſecution be fined above *one Shilling*. But it is to be obſerved, That this Ordinance (commencing the 24th Day of *June* 1746, was to continue in Force only for the Space of *ſeven Years*, and from thence to the End of the next
1753. Seſſion of Parliament. AND, by an Ordinance of the 26th of *George* II, is continued in Force until the 24th of *June* 1758, and from thence to the End of the next Seſſion of Parliament.

The Form of a Proclamation *in the* Gazette, *mentioned on Page* 334.

AT the Court at *Kenſington*, the 3d Day of *June* 1747. Preſent, the King's moſt Excellent Majeſty in his Privy-Council.

WHereas *Jacob Pring*, otherwiſe *Prim*, of *Hawkhurſt*, in the County of *Kent*, Labourer, was, upon the Sixth Day of *May* laſt, charged by Information of a credible Perſon upon Oath, by him ſubſcribed before *Thomas Burdus*, Eſq; one of his Majeſty's Juſtices of the Peace for the County of *Middleſex*, with having been guilty upon the Second Day of *April* laſt, of being, with diverſe other Perſons, armed with Fire-Arms, or other offenſive Weapons, and ſo armed, being aſſembled at *Chiſſelet* near *Reculver*, in the County of *Kent*, in order to be aiding and aſſiſting in the Running, Landing, and Carrying away uncuſtomed Goods:—Which Information was afterwards certified by the ſaid *Thomas Burdus*, under his Hand and Seal, to one of his Majeſty's Principal Secretaries of State, who has laid the ſame before his Majeſty in his Privy-Council, purſuant to the late Act of Parliament of the Nineteenth

teenth Year of the Reign of his preſent Majeſty, in that Caſe made and provided; — His Majeſty doth, by and with the Advice of his Privy-Council, by this his Order in his Privy-Council, require and command, that the ſaid *Jacob Pring*, otherwiſe *Prim*, do ſurrender himſelf within the Space of forty Days after the firſt Publication of this Order in the *London Gazette*, to the Lord Chief Juſtice, or one other of his Majeſty's Juſtices of the Court of *King's-bench*, or to one of his Majeſty's Juſtices of the Peace.

William Sharpe.

The Attorney *and* Sollicitor General's *Opinion concerning the Apprehending of Smugglers.*

AT the Court at *Kenſington*, the third Day of *June* 1747. Preſent, the King's moſt Excellent Majeſty in his Privy-Council.

WHereas there was this Day read, at the Board, a Report made by his Majeſty's Attorney and Sollicitor-General, to the Lords Commiſſioners of his Majeſty's Treaſury, upon conſidering a Repreſentation from the Commiſſioners of the Exciſe, together with ſeveral Papers thereto annexed, relating to the audacious Behaviour of the Smugglers in the Counties of *Kent* and *Suſſex*, who aſſemble in great Bodies, and go armed to aſſiſt in the Smuggling and Receiving of Run Goods; and not only menace the Magiſtrates, but reſiſt the Officers of the Revenues in the Diſcharge of their Duty. Which Report is as follows, *viz.*

To the Right Honourable the Lords Commiſſioners of his Majeſty's Treaſury,

May it pleaſe your Lordſhips,

" IN Obedience to your Lordſhips Commands, ſignified to us by Mr. *Weſt*, " in his Letter of the 23d Inſtant, tranſmitting a Repreſentation of the " Commiſſioners of the Exciſe, of the audacious Behaviour of the Smugglers " in the Counties of *Kent* and *Suſſex*, and of their Menaces to the Juſtices of " the Peace, the Officers of the Revenues, and all others who ſhall dare to ob- " ſtruct their outrageous Proceedings: By which Letter we are directed to take " the ſaid Repreſentation, and the Papers annexed, into Conſideration (which " are all herewith returned) and report to your Lordſhips what Powers there " are at preſent for any of his Majeſty's Officers, either Civil or Military, to " reſiſt and ſubdue thoſe Offenders, and to prevent the like for the future by " Force, as all other Means have hitherto proved ineffectual to that End.

" We have taken the ſame into Conſideration, and are of Opinion, that all " his Majeſty's Subjects, both Civil and Military, Magiſtrates, Officers and pri- " vate Perſons, have, without any expreſs Warrant for that Purpoſe, Authori- " ty to ſeize and apprehend any Perſons aſſembled, armed, and acting, or who " have aſſembled, armed, and acted in ſuch Manner as deſcribed in the afore- " mentioned Repreſentation and Papers, and bring them before a Magiſtrate, " who may commit them to Priſon; and, in the ſeizing, apprehending, ſecur- " ing, and committing them to Priſon, may repel Force with Force, and juſtify " any Violence or Hoſtilities which may be neceſſary to ſuppreſs and ſubdue " them, or bring them to Juſtice.

" The Powers abovementioned are veſted in all his Majeſty's Subjects gene-

" rally for the Preſervation of the Peace: But the Juſtices of the Peace, and " Peace-Officers are, both by the Nature of their Office, and the expreſs Di- " rection of diverſe Acts of Parliament, bound to ſuppreſs all Riots, unlawful " Aſſemblies, and Breaches of the Peace, of which the Offences complained of " are notorious Inſtances. And the Neglect of it is a high Miſdemeanour, for " which they are accountable in a Criminal Proſecution.

" The Law has likewiſe for this Purpoſe furniſhed them with Strength " and Force, as well as Authority, by impowering and commanding them " to uſe the whole Power of the County, that is, to call all or any of his Ma- " jeſty's Subjects, except Clergy, capable of Arms, to aſſiſt them, and, as " Part of thoſe Subjects, they may command, and take the Aſſiſtance of any " Military Force in thoſe Parts, who, and all others, will be fully juſtified " in any Acts of Violence they ſhall do againſt the Offenders.

" As to the preventing the like Offences for the future, the Law has al- " ready made them very penal, eſpecially by an Act of the laſt Seſſions, by " which the aſſembling and going armed, to the Number of three, to aſſiſt " in any Sort of Smuggling, or receiving or protecting run Goods, or in re- " ſcuing Priſoners guilty of Felony, by the Laws relating to the Cuſtoms or " Exciſe, and the reſiſting the Officers of thoſe Revenues, by the like Num- " ber of armed Perſons, are made Felony, without Benefit of the Clergy; and " in which Act particular Proviſions are made by great Rewards and other- " wiſe, for the apprehending and bringing ſuch Offenders to Juſtice. And " we don't know what further can be done, than by keeping a ſufficient " Force in thoſe Parts, and giving ſtrict Orders to all Officers, both Civil " and Military, to uſe that Force in Support of the Laws, and ſuppreſſing, " ſubduing, and bringing to Juſtice all ſuch Offenders, and by ſeeing that " ſuch Orders be obeyed.

" All which is ſubmitted to your Lordſhips Conſideration."

D. Ryder.
W. Murray.

His Majeſty, upon Conſideration thereof, is hereby pleaſed to order, with the Advice of his Privy-Council, that a Copy of the ſaid Report be printed and publiſhed in the next *London* Gazette, to the End that all his Majeſty's Subjects may be informed of the Powers veſted in them by Law, for the ſeiz- ing, apprehending, ſecuring and committing to Priſon, all Perſons whatſoever, who have acted or ſhall hereafter act in the Manner before mentioned. — And his Majeſty doth hereby require and command all Officers, both Civil and Military, to uſe their utmoſt Force in the Support of the Laws and ſuppreſ- ſing, ſubduing, and bringing all ſuch Offenders to Juſtice.

William Sharpe.

CHAP.

CHAP. X.

Concerning the Buſineſs and Duty of thoſe Officers of the Exciſe, who ſurvey Tanners, Tawers, Oil-Dreſſers, *and* Parchment-Makers; *ſo far as to prevent their* evading *the Duty, or* defrauding *the Revenue.*

THE Officer, after he has qualified himſelf as directed in *Page* 215, if he has a FOOT-WALK, he muſt ſurvey every Tanner, Tawer, Oil-Dreſſer, and Parchment-Maker, at leaſt *once* a Day, and *oftener*, if it is apprehended needful; and this he muſt do at *uncertain* Times, as a Means to diſcover any unfair Practices. But, if he has a RIDE, then he muſt conſult with the *Superviſor* what Place will be moſt proper for him to reſide at, ſo as to make the beſt of thoſe Branches of the Revenue as are under his Care and Inſpection; and whatever Place it is which he reſides at, he muſt ſurvey *that*, in all Reſpects, as a *Foot-Walk*, and his *Ride* as often, and in ſuch Manner, as is directed in *Page* 232.

How the Officer muſt be qualified. Of ſurveying Foot-Walks.

Of ſurveying Rides.

The Officer muſt obſerve that all *Tawers*, *Oil-Dreſſers*, *Tanners*, &c. muſt give two Days Notice in Writing, of the *Day and Hour of the Day*, before they take any Hides, Skins, *&c.* out of the *Wooze*, *&c.* in order to be dried, unleſs it be in *Foot-Walks*, or thoſe Yards which are ſurveyed *every Day*; here *one* Day's Notice for *taking out*, or for *marking*, will be allowed of as ſufficient. And theſe *Notices* the Officer muſt put on a *File* at the *Exciſe-Office*, kept for that Purpoſe; and the *Traders* * muſt likewiſe make Entries of their Goods within *two* Days after they are taken out; for which Purpoſe, the Officer muſt leave a new *Entry Paper* at each Trader's Houſe, and the old ones muſt be carried *to the Office*, that at the Sitting the *Superviſor* or *Collector* may compare them with the Book, and *ſwear* the Traders, or ſuch *proper Servants* as they ſhall appoint: And all theſe Entries the Officer muſt put upon *another File*, and put a blank Paper between each Round. But if any Tanner, Tawer, *&c.* does not take out Goods in order to dry, *at* or *near* the Time expreſſed in the Notice given, then ſuch Tanner, Tawer, *&c.* is obliged to give a freſh Notice, after the ſame Manner, as if no former Notice had been given by him. If the Officer, when he is upon his Survey, finds that any *Calf-Skins*, *Hides*, *Butts*, or *Backs*, are *newly* taken out, he muſt be ſure to take an Account of them by *Tale*, and compare the ſame with the reſpective Perſon's Entry. The Officer muſt alſo, as often as poſſible, take ſuch *other* Goods by *Tale* as are *newly* taken out, and not, to excuſe his Neglect, make a Pretence of his being otherwiſe employed, unleſs he really were ſo. And, in ſuch Caſe, he muſt immediately write over the ſame *not examined*. And as a

All Tanners, *&c.* to give two Days Notice.

Except in Foot-walks.

Theſe Notices to be filed.

Traders to make Entries.

When Traders are to give freſh Notice.

Account to be taken by Tale of Hides, *&c.* and compared with the Entry.

* Tanners, Tawers, *&c.*

How to prevent Frauds.

Means to check and prevent the Trader's *carrying away* any *Hides*, *Skins*, *Backs*, or *Butts*, &c. which were dried, or were drying, before they are *marked* and *charged*, and putting others *in their Place*, which have been *privately* taken out, he muſt *frequently count* the Number of ſuch Kinds of *Hides*, *Skins*, &c. and obſerve the Condition of them; and if he perceives that any are miſſing, or ſome of the ſame taken out which *were almoſt dried*, and others *wet*, he may then juſtly ſuſpect a *Fraud*. And in ſuch Caſes he muſt uſe his Endeavours to detect them, that Information may be laid for *removing them before marked*, or *for taking out without giving Notice* thereof.

To be weighed as ſoon after Notice as poſſible.

The *Officer* muſt *weigh* and *mark* the Goods as ſoon as poſſible, after the *Notice* is ſhewn in the *Journal*, and he ſhould frequently try and examine the *Weights* and *Scales* * one againſt another, and ſee that they are juſt, before he offers to proceed to weigh; and he muſt *mark* each Draught *out of the Scales*, and not weigh *two* or *more* Draughts before he *begins to mark* them.

Officer muſt prove the Scales, and mark *each* Draught out of the Scales.

How the different Sorts of Leather are to be ſtamped.

The Method of *marking* or *ſtamping* is as follows, which the Officer muſt be careful to obſerve, *viz.* *Hides*, *Butts*, and *Backs* muſt be marked on *each Buttock*; except *Horſe-Hides*, with the *Hair on*, and theſe muſt be marked on the *Flank*; tanned *Calf-Skins*, *Hog-Skins*, and *Dog-Skins*, muſt be marked *above the Tail*, and other Skins in the *Neck*; and the Officer muſt *note*, that no Leather is ever to be marked on the *Fleſh-ſide*, that the Mark may be as plain and viſible as poſſible, after the Skins and Hides are *pared*, *curried*, &c.

Muſt obſerve the Stamps.

As often as he has an Opportunity, the Officer muſt obſerve the *Marks* upon Leather, whether they are ſtruck with a *true or falſe Stamp*, in which he will be aſſiſted by theſe Remarks, *viz.*

Of *Scotland* and the Cuſtom-houſe Marks.

That the Stamps which are uſed in *Scotland*, or *North-Britain*, are diſtinguiſhed from thoſe uſed in *England*, by having the Letters N. B. and the Stamps which are uſed at the *Cuſtom-Houſe* are diſtinguiſhed from either of the other, by having the Letter I, which ſignifies *Import*.

When Leather has been ſtamped wet, and of the N° of ſuch Mark.

☞ The Officer muſt alſo take Notice, that, when Leather has been ſtamped while it was *wet*, the Mark *will always be ſhrunk*, and not appear ſo large and fair as it does upon Leather that has been marked when it was *dry*; and when he finds any Leather that has been ſo marked, he has cauſe to ſuſpect that the Duty has not been regularly and fairly charged; becauſe it is contrary to the Intereſt of the Trader to have his Leather weighed in *ſuch a Condition*. And in ſuch Caſe the *Superviſor*, or *Collector*, muſt be made acquainted with it; as alſo with *the Number of the Stamp*, that the *Commiſſioners* may have Knowledge of it, and prevent the like Practices for the future.

What Care the Officer ought to take of his Stamp.

The Officer cannot be too careful of the *Stamp* wherewith he is intruſted, becauſe if he loſes it, *he will be diſcharged*; and, to prevent any *fraudulent* Uſe being made of the Stamp, it is highly requiſite that, when he has not Occaſion to carry it with him, he keeps it ſafely *locked up*, and intruſt no Soul with the keeping of the Key but himſelf. There having been repeated

* See *Page* 207.

repeated Inſtances of Tanners and others who have *impaired* or *ſhaved* their Skins, contrary to Act of Parliament; and likewiſe that have not kept their *Skins* and *Hides*, which have not been *duly marked*, *a-part* and *ſeparate* from their Skins and Hides that have been *duly* marked; or that have not for the Space of *twenty-four* Hours in FOOT-WALKS, or of *Forty-eight* Hours in RIDES, next after ſuch Goods are marked, kept them ſeparate from thoſe Goods which were *of a former Marking*, except they have been ſooner re-weighed, or an Account taken of them by the *Surveyor*; In theſe, or the like Caſes, the Officer muſt give the *Collector* or *Surveyor* Notice, that they may proſecute ſuch Offenders according to Law. The Officer muſt *ſwear* Tanners, Tawers, and Oil-Dreſſers, to the Value of their Goods, which are charged *ad Valorem*, at the ſame Time that he makes ſuch Charges in his Book; and, after he has ſigned thoſe *Affidavits*, he muſt be careful to put them upon the *Notice-File*. It is eaſy to produce many Inſtances, in which the Revenue has greatly ſuffered by running *wet Goods* from the *Tanners* to the *Curriers*, and alſo by *privately waſhing* Skins at the *Oil-Mills*; the Officer muſt therefore, to prevent ſuch Practices, make *cautionary Surveys* upon thoſe, who are ſuſpected of ſuch Practices, as often as he can; and if he meets with any Leather in the *Currier*'s Poſſeſſion, or if at any *Fairs* or *Markets* he finds any Leather *unmarked*, and cannot receive Satisfaction that the Duty of it has been charged, he muſt, in either of thoſe Caſes, make a Seizure of the ſame. Some Traders have been frequently guilty of entering oiled *Deer* Skins for *Sheep* and *Lamb*, and tanned *Calf* Skins for *Slinks*; the Officer therefore, that he may not be impoſed upon, muſt be careful and induſtrious in applying himſelf to get a true Knowledge of the ſeveral *Kinds* of Leather; ſo that he may be able to diſtinguiſh one Sort from another; and he muſt *obſerve*, that in all *Lamb* and *Sheep* Skins the *Gaſh* of the Knife will appear in the Shanks, but in *Buck* and *Doe* Skins the Shanks are ſmooth, by Reaſon they are *caſed* and not *flayed*, as Lamb and Sheep are: And, if he finds the *Shanks* cut off, he has Reaſon to ſuſpect a Fraud. And, where the Officer is *doubtful*, he muſt always make the *beſt Charge*, and leave the Trader to diſcharge himſelf as he can. *Note*, That Vellum and Parchment in the Cuſtody of *Diſtributers* of the *Stamp-Office*, and their *Sub-diſtributers*, not marked with the *Leather-Stamp*, the Officer is to let paſs, as having paid the Duty of Vellum and Parchment; *provided* the ſame appears to have the *Price Mark* * of the Stamp-Office thereon. There is an eaſy Method (which is *approved of by the Commiſſioners*) for

Of leſſening the Weight of Hides.

Of removing and not keeping ſeparate from thoſe formerly marked.

Muſt ſwear Tanners, &c. to the Value of thoſe Goods that pay Duty *ad Valorem*.

Of running wet Goods from the Tanners to the Curriers, and of waſhing Skins at the Oil-Mills.

The unſtamped Leather, &c. to be ſeized.

How Officers are impoſed upon.

Of the ſeveral Kinds of Leather.

The Uſe of obſerving the Shanks.

In doubtful Caſes make the beſt Charge.

Of ſtamped Vellum, and Parchment.

An expeditious Method for charging the Duty on *Pieces* of Hides, &c.

* This Mark is made with *Printing* Ink, and uſually placed below the Stamp, to ſhew the Price of the Parchment excluſive of the Stamp. Such Skins as are regularly prized at the Office, have a *Crown* at the Top of this Mark, which Skins prized elſewhere always want.

for the Officer's expeditious charging the Duty on *Pieces* of *Horſe-hides*, and *other Hides*, which are *tawed*, and Pieces of *Beaver-ſkins*; and the Method is this: *Firſt*, Of *Beaver-ſkins*; Weigh a *middling* Dozen, which we will ſuppoſe weighs twenty Pounds, and enter 20 in his Book, on the Top of the Leaf, in the *proper* Column, and this will be a *fixed Diviſor*, to find out the *Dozen* and *odd Skins*, which are contained in a Parcel of Pieces of Beaver Skins: As *for Example*; A Number of Pieces of Beaver weighs 895 Pounds, this being *divided* by 20, the Weight of a *middling* Dozen, it brings out 44 Dozen 9 Skins to be charged in the Officer's Book. *Secondly*, Let us ſuppoſe, for *Example*, the 895 Pounds to be the Weight of a Number of Pieces of *Horſe*-Hides *tawed*, and the *Diviſor* 20 Pounds to be the Weight of a *middling Horſe*-Hide, then muſt the Officer's Charge be $44\frac{3}{4}$ of *Horſe*-Hides. *Thirdly*, For *Example*, let us ſuppoſe the 895 Pounds to be the Weight of a Number of Pieces of *other* Hides *tawed*; if you *divide* it by 40, which we will ſuppoſe to be the Weight of *one other* middling *Hide*, then the Officer muſt charge $22\frac{1}{2}$ of *other* Hides, I think this is very plain; but, leſt I ſhould not be underſtood, I ſhall ſet down the *Working* of the Examples above.

Examples.

1. Pieces of *Beaver.*	2. Pieces of *Horſe-Hides.*	3. Pieces of *other Hides.*
20) 895 ($44\frac{3}{4}$	20) 895 ($44\frac{3}{4}$	40) 895 ($22\frac{1}{2}$
80	80	80
95	95	95
80	80	80
15	15	15
Equal to 44 *Doz.* 9 *Skins.*	Equal to $44\frac{3}{4}$ *Hides.*	

Becauſe I believe it may be uſeful to many, I ſhall here ſet down a *Deſcription* of thoſe ſeveral Sorts of Leather that are made uſe of for *Upper-Leather*, or *Sole-Leather*, which do not retain the Name of the Hide or Skin from whence they are taken; but, upon their being cut into *particular Forms*, acquire *new* Names. I. Such of theſe as are made Uſe of for **Upper-Leather**, are known by the ſeveral Names of *Dibbings*, *Roundings*, *Wombs*, *Rands*, and *Offals*: The *Offal* is only the *thin* Part of ſuch Hides as the *Bends* and *Clout-Leather* are cut from, *i. e.* the *Belly*, *Flank*, and *Shank* of the Hide; and theſe are frequently cut into ſeveral Pieces, and tanned for *Upper* Leathers. The *Offal* Part of the Hide is moſt frequently met with in remote Collections, in ſome of which they are alſo known by the Name of *Roundings*, in others by the Name of *Heads*, *Dibbings*, and *Wombs*. II. Of ſuch as are made uſe of for **Sole-Leather**, and are diſtinguiſhed by the ſeveral Names

Of Upper-Leather called Roundings, Wombs, Rands, and Offals.

Of *Sole-Leather*, called *Crop-Soles*.

of *Crop-Soles*, *Bends*, *Clout-Leather*, *Butts*, and *Backs*. *Crop-Soles* are cut out of the *Back* of a good ſtout *Upper-Leather*-Hide, after it is tanned. 1. **Bends** are what are cut out of the beſt Part of the Hide, *i. e.* out of the *Back*, *Ribs*, *Buttocks*, and *Shoulders*, and into more or leſs Pieces frequently from ſix to ten *Bends*, according as the Cuſtom of the Country requires; and then they are tanned in the ſame Manner as *Butts* and *Backs*, which I ſhall deſcribe below. 2. **Clout-Leather**, is only a *ſmaller Sort* of *Bends*; the beſt Part of the Hide being cut into 20 or 30 Pieces, which is *cured* differently from *Bends*, *Backs*, or *Butts*, (which are immediately hung up to dry when taken out of the *Wooze*:) But *Clout-Leather*, when it is ſufficiently tanned, is laid in a Hole, covered with *Horſe-Dung*, which gives the Leather, when it becomes dry, an extraordinary *Hardneſs*, and a *black Colour*: This Sort of Leather is very common in the *Weſt* of *England*, *viz.* at *Exeter*, &c. 3. **Butts** moſt commonly are made from the largeſt *Ox*, *Bull*, *Steer*, or *Cow* Hides; and thoſe are tanned *whole*, after the *Pates* and *Tails* are cut off, which are tanned *ſeparately*: The Hides, thus tanned, are for the moſt Part called *Butts*, yet in ſome Places they call them *Bends*, *viz.* at *Briſtol*, *Southampton*, and thereabouts. 4. **Backs** are as uſually made from *ſmall* *Hides*, as from *large* ones, which, for the Conveniencies in tanning, and packing afterwards, are cut *down the Back* into *two* Parts; and hence it is, that, in taking an Account of *this* Sort, there may appear 11 *Sides* of Leather taken out; which in the Officers Books are expreſſed $5\frac{1}{2}$ *Backs*.

Bends what.

Clout-Leather what,

Butts what.

Backs what,

☞ The *Pates* and *Tails* of theſe, as well as of the *Butts*, are cut from theſe Hides, and tanned ſeparately.

Of the Pates and Tails.

N. B. That *all the other Sorts of Goods*, which are either *tawed*, *tanned*, or *dreſſed in Oil*, are *diſtinguiſhed* by the *Kind* or *Species* that produces them.

☞ Though *Bends*, *Butts*, and *Backs*, are Names given to Leather, by thoſe that deal and trade therein, yet they are Words not to be found in the Acts of Parliament by which the Duties are laid upon Hides, &c. And, ſince the Words uſed in the Acts are neceſſary to be uſed in INFORMATIONS, it is beſt to inſert both, *viz.*

When *Bends* are to be mentioned in Informations, ſay, Ten Pieces of Hides, commonly called *Bends*.

When *Butts* are to be mentioned, ſay, One Hide, commonly called a *Butt*, or four Hides, commonly called *Butts*.

When *Backs* are to be mentioned, ſay, One Piece of an Hide commonly called a *Back*, or ſix Pieces of Hides, commonly called *Backs*.

And, by obſerving this Method, the Leather mentioned in the Information will be ſure to agree both with the Evidence and Acts of Parliament.

A Compendious *Table, (which will be very uſeful both to the* Officer *and* Trader) *ſhewing the* Total *Rates to be paid for* Hides, Skins, *&c. that are* dreſſed in Oil, Tawed *or* Tanned *in* Great-Britain.

1. *Skins, Hides,* &c. *which are* Dressed in Oil.

		l.	s.	d.	
Sheep and Lamb	at	0	0	3	per Pound.
Hides, Deer, Goat and Beaver	at	0	0	6	per Pound.
Calf-Skins	at	0	0	8	per Pound.
Skins and Pieces, *&c. ad Valorem*, at 15 *per Cent.* and alſo	at	0	0	2	per Pound.

2. *Skins, Hides,* &c. *which are* Tawed.

		l.	s.	d.	
Sheep and Lamb	at	0	0	1¼	per Pound.
Calves and Kipps	at	0	0	1½	per Pound.
Buck and Doe	at	0	0	6	per Pound.
Calves Slink without Hair, Dog, and Kid	at	0	1	0	per Dozen.
Beaver and Goat	at	0	2	0	per Dozen.
Calves Slink with Hair	at	0	3	0	per Dozen.
Horſe-Hides	at	0	1	6	per Hide.
All other Hides	at	0	3	0	per Hide.
Skins and Pieces, *&c. ad Valorem*	at	30	0	0	per Cent.

3. *Skins, Hides,* &c. *which are* Tanned.

		l.	s.	d.	
Sheep and Lamb, Butts and Backs, Hides, Calves and Kipps, Hogs and Dogs	at	0	0	1½	per Pound.
Roans	at	0	0	2	per Pound.
Goats tanned with Shumack	at	0	0	4	per Pound.
Skins and Pieces, *&c. ad Valorem*	at	30	0	0	per Cent.
Parchment	at	0	1	6	per Dozen.
Vellum	at	0	3	0	per Dozen.

☞ To ſave the *Officer* and *Trader* the Trouble of computing the Amount of the Duty of thoſe Goods, which pay Duty *ad Valorem*, after the Rates of 15*l.* and 30*l. per Cent.* I have calculated the two following Tables.

A Table

A Table at 15 *per Cent ad Valorem, per* C. Leadbetter.

Value being		Duty is		Value being		Duty is	
s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
0	5	0	0¾	10	5	1	6¾
0	10	0	1½	10	10	1	7½
1	3	0	2¼	11	3	1	8¼
1	8	0	3	11	8	1	9
2	1	0	3¾	12	1	1	9¾
2	6	0	4½	12	6	1	10½
2	11	0	5¼	12	11	1	11¼
3	4	0	6	13	4	2	0
3	9	0	6¾	13	9	2	0¾
4	2	0	7½	14	2	2	1½
4	7	0	8¼	14	7	2	2¼
5	0	0	9	15	0	2	3
5	5	0	9¾	15	5	2	3¾
5	10	0	10½	15	10	2	4½
6	3	0	11¼	16	3	2	5¼
6	8	1	0	16	8	2	6
7	1	1	0¾	17	1	2	6¾
7	6	1	1½	17	6	2	7½
7	11	1	2¼	17	11	2	8¼
8	4	1	3	18	4	2	9
8	9	1	3¾	18	9	2	9¾
9	2	1	4½	19	2	2	10½
9	7	1	5¼	19	7	2	11¼
10	0	1	6	20	0	3	0

A Table at 30 *per Cent. ad Valorem, per* C. Leadbetter.

Value being		Duty is		Value being		Duty is	
s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
0	2½	0	0¾	5	2½	1	6¾
0	5	0	1½	5	5	1	7½
0	7½	0	2¼	5	7½	1	8¼
0	10	0	3	5	10	1	9
1	0½	0	3¾	6	0½	1	9¾
1	3	0	4½	6	3	1	10½
1	5½	0	5¼	6	5½	1	11¼
1	8	0	6	6	8	2	0
1	10½	0	6¾	6	10½	2	0¾
2	1	0	7½	7	1	2	1½
2	3½	0	8¼	7	3½	2	2¼
2	6	0	9	7	6	2	3
2	8½	0	9¾	7	8½	2	3¾
2	11	0	10½	7	11	2	4½
3	1½	1	11¼	8	1½	2	5¼
3	4	1	0	8	4	2	6
3	6½	1	0¾	8	6½	2	6¾
3	9	1	1½	8	9	2	7½
3	11½	1	2¼	8	11½	2	8¼
4	2	1	3	9	2	2	9
4	4½	1	3¾	9	4½	2	9¾
4	7	1	4½	9	7	2	10½
4	9½	1	5¼	9	9½	2	11¼
5	0	1	6	10	0	3	0

New Tables at 15 and 30 *per Cent. ad Valorem.*

CHAP. XI.

Concerning the Buſineſs *and* Duty *of thoſe Officers of the Exciſe, who ſurvey* Tallow-Chandlers *in* the Country, *ſo as to prevent their* evading *the Duty, and* defrauding *the Revenue.*

EVERY Chandler or Maker of Candles, except *Compounders*, are to make true and particular *Entries* of their *Workhouſes, Storehouſes, Utenſils*, &c. *every ſix Weeks*, and the Officer is to take Care to ſee that the *Office-keepers*, when they receive ſuch Entries, do *immediately* write upon each Entry the Day of the Month, and the Year of our Lord when they receive them, and ſign their Names thereto, and put them upon a *File*, which muſt be carefully locked up; and the Officer is, from Time to Time,

Chandlers obliged to make Entries every ſix Weeks.

Duty of the *Office-keeper* and *Officer*.

as

as ſuch Entries are made, to copy the ſame into a Book for that Purpoſe, and thoſe Copies are to be *atteſted by the Office-keeper*, and as ſoon as poſſible, after any ſuch Entry is made, and copied, the Officer is to require the Perſon *who made it*, to ſhew him every *Melting-houſe*, *Work-houſe*, *Ware houſe*, *Store-houſe*, *Shop*, *Room*, or *other Place*, and alſo every *Copper*, *Kettle*, *Pot*, *Mould*, or other Veſſel or Utenſil, *expreſſed therein*; and the Officer muſt inſert, in his *Entry-Book*, the *Situation* of all thoſe Places, and mark the Particulars in ſuch manner, as may enable him, or the *Superviſor*, *or any other*, readily to find the ſame.

Immediately to repair to the Perſons making Entry.

When Foot Officers muſt ſurvey Chandlers.

The *Foot* Officer muſt ſurvey *every* Chandler in his Diviſion, *at leaſt once* in ſix Hours, when at work, and never leſs than *twice a Day when ſilent*; but *oftener* where any Fraud is ſuſpected; and theſe Viſits muſt be as *early* in the Morning, and as late at Night *as poſſible*; and it is requiſite that the Officer ſhould ſometimes ſurvey ſuch as have made their Declarations, between the Time of his receiving thoſe Declarations, and the Hour declared for Beginning; however, he muſt not exceed *three Hours* after *the Time declared*, that he may diſcover whether the Chandler begins *before*, or within *three Hours* after the Time mentioned in his Declaration.

Riding Officers to ſurvey Chandlers early and late at uncertain Hours.

Riding Officers muſt ſurvey their Chandlers in Rides on *uncertain Days*, and at *uncertain Times of the Day*; ſometimes as *early* in the Mornings, and ſometimes as *late* in the Evenings, *as poſſible*; and as often as he can, *twice* in a Day when he has a Declaration depending.

All Tallow-Chandlers, *or thoſe who make Candles for Sale*, before they begin to *work upon*, *dip*, or *make* any *Courſe*, or *making of* Candles, or light any Fire under any *Copper*, *Kettle*, or other *Utenſil*, for the melting Tallow, or other Materials for the making Candles, or ſpread any *Ruſhes*, or *Cottons*, are obliged to make and deliver (or cauſe to be made and delivered) to the Officer in whoſe Survey they are, a *Declaration* in Writing, containing,

The Particulars that muſt be expreſſed in every Entry.

1. A *True Account of the* Number *of* Sticks, *of which ſuch making is intended to conſiſt.*

2. *An Account of the* Sizes, and true Number of Candles *intended to be made on* each Stick.

3. *The particular* Hour and *Time of the* Day, *or* Night, *when ſuch Courſe or Making is intended to be begun.*

And if the *Making* or *Courſe* of Candles ſhall not be *begun*, or *proceeded upon* at the Hour and Time mentioned in ſuch Declaration, or in *three Hours next after that Time*, then the ſaid Declaration is to be void.

Of the Entry of Mould Candles.

N. B. But, if ſuch *Courſe* or *Making* is intended to be of *Mould* Candles, the Maker ſhall declare to the Officer, before he begins to fill any of the ſaid Moulds, *how many* Moulds he intends to fill, and *how often* he intends to draw the ſaid Moulds at ſuch Making. ☞ Wherever the Officer has Reaſon from any Circumſtance to ſuſpect unfair Practices, and obſerves

Of Frauds in Mould Candles.

any

any conſiderable Difference in *the Forwardneſs* of a Making of Candles, or in any particular Size therein, *viz.* as ſome of them to be made about $\frac{3}{4}$, when others are but $\frac{1}{8}$, in ſuch Caſe he muſt, by ſuch Characters, denote the Difference againſt ſuch Stick, and make *quick* Returns, upon ſuch Chandler, in order to prevent or diſcover any unfair Practice, by carrying off thoſe Sticks and Candles that are *near finiſhed*, and ſupplying their Place by others privately brought in: And in this Caſe, the Officer ſhould frequently look through *all Parts* of the Houſe, or other Place, that may be convenient for carrying on ſuch Frauds; *eſpecially*, ſuch Places as have been entered, ☞ and he muſt *obſerve*, the Condition the *Copper* and *Mould* are in, whether they are *warm or not:* He ſhould alſo take Notice of the *Colour*, or Condition of the Candles *in Stock*, and alſo *the Size* of them, in order to find out if the Chandler has a greater Quantity of any Size than has been charged upon him. The Officer ſhould likewiſe make Obſervation concerning the Stock of Tallow, and the Condition of the Tubs wherein it lies, that he may diſcover if any be miſſing between his Surveys; and what elſe he thinks may be of uſe to diſcover whether the Chandler works fairly or otherwiſe. As ſoon as the Officer finds a Making of Candles finiſhed, he muſt deſire to have them weighed, if in a Condition for it; but if not, he muſt take an *Eſtimate* of them, by trying a *Pound*, or *other ſmall Quantity* of each Size, and he muſt enter the Sizes according to what he finds them to be by ſuch *Eſtimate*; and he is to caſt up that Eſtimate, if he finds any of the Sizes different from the Chandler's *Declaration*, or his own *former* Account. If they are not different from, but agreeable to what was entered before in his Book, then he need not be at the Trouble to caſt it up. The Officer muſt be careful to return in *due Time*, to weigh the Candles, and enter the *ſeveral* Draughts in his Book, as he weighs them; and he ought to compare the whole with the Chandler's *Declaration*; and, if he obſerves any of the *Sticks* or *Candles* to be miſſing from a *former* Account, he muſt then charge ſo much as ſuch Candles ſo miſſing may reaſonably be ſuppoſed to weigh, and acquaint the *Collector* and *Superviſor* therewith; it being the *Collector*'s Province to ſee that an Information be laid, for fraudulently removing them before they are weighed; and if he ſuſpects that the Sizes differ from the *Declaration*, he muſt weigh each Size *ſeparately*. The Officer ought to be very careful before he begins to weigh any Making, that the *Tare* of the *Frame* or *Baſket* on which the Candles are hung, *be truly ballanced*, or elſe that the *Tare* thereof *be exactly adjuſted, and entered in his Book*, before he ſets down any Draught; and if he does not ballance the Rods on which the Candles are made, with a *like Number* of other Rods, he muſt deduct the *Tare* of the *Rods*, as well as the *Tare* of the *Frame* out of every Draught before he puts it down, and he ought to be very careful that he is not impoſed upon by falſe *Scales* †, or *Weights*, or by *counter-ballancing*

Methods to prevent Frauds.

Officer to deſire the Candles to be weighed as ſoon as made, or make an Eſtimate.

Other Frauds how to be guarded againſt.

Collector and Superviſor to be acquainted when Candles are miſſing.

To ſee the Tare of the Frame, Baſkets, and Rods well adjuſted.

To guard againſt unfair Scales and Weights.

† See Page 207.

How the Duty is to be allowed for crack'd Candles.

cing thoſe Sticks whereon the Candles are, with others that are of a much greater Weight. ☞ When it ſo happens that Candles are crack'd and ſpoil'd, in making, and the Chandler intends to have *them defaced*, and the Duty allow'd him for the ſame, the Officer muſt at the Time of Weighing the Making, of which ſuch *crack'd Candles* are a Part, take Notice in his Book, by a *Memorandum*, that Part of the Candles of ſuch Making are crack'd, and he muſt alſo enter an *Eſtimate*, as near as he can, of the Quantity that are ſo crack'd, and deſire the

Superviſor's Duty as to crack'd Candles.

Chandler to keep them till the *Superviſor* comes, who muſt examine them, and if he has good and ſufficient Reaſon to believe that there are ſuch only as were crack'd and ſpoil'd *in making*, he is to weigh and ſee them *utterly defaced*, that no Part thereof may be left in a Condition to be burned, and the *Superviſor* is to certify, in the Officer's Books, the Quantity defaced, and *for ſuch and no other*, is the Chandler to have an Allowance out of the next Candles he makes. It is highly requiſite, where any

When Candles are not like to be finiſhed till late at Night.

making of Candles is depending in the Town the Officer reſides in, and which are not likely to be finiſhed till *late at Night*, that he contrives his Surveys, ſo as not to fail taking an Account of them *that Night*, by *Eſtimation*, or *Weight*, after they are finiſhed, and ſee that the *Mould* is drawn, and *Fire* from under the *Copper*. And where the Officer ſuſpects any Chandlers to commit Frauds, he ought to ſurvey them *once* or *oftener*

Chandlers muſt be kept up to their Duty.

on a *Sunday*. It is the Buſineſs of an Officer to be careful to keep the Chandlers up to their *Declaration*, and to all other Parts of their Duty; and when he obſerves they neglect, or refuſe to perform the ſame; or when he diſcovers any Fraud, he muſt acquaint the *Collector* or *Superviſor* therewith; for it is their Province to ſee that the Offender is proſecuted according

How to proceed when the Chandler refuſes to admit to ſurvey.

to Law. Notwithſtanding the Imprudence ſome have formerly been guilty of, I'm inclined to believe there are none now, who are ſubject to this Duty, ſo ſtupid as to refuſe the King's Officer free *Ingreſs* and *Regreſs*; yet, ſince 'tis poſſible, that to cover a Fraud, he may ſometimes be denied *Admittance*. I ſhall here ſet down how his *Duty* requires he ſhould proceed when it is refuſed him. ☞ The Officer when he demands Admittance or Entrance at, or into any Chandler's, *&c.* he muſt firſt, for a reaſonable Time, *Ring*, *Call*, or *Knock*, at the Chandler's *Gate* or *Dwelling-Houſe*, or ſuch other Place where he has before *uſually* procured Entrance; and if he be not admitted upon ſo doing, he muſt, with a *plain* and *audible* Voice, make a Demand at the ſaid Gate, Dwelling-Houſe, or other Place, in Words to

The Form of a Demand of Admittance.

the following Effect, *viz.* "I Gauger, "or Officer of Exciſe, do demand Entrance into the Work-"houſe of Mr. to ſurvey, or take Account of his "Candles according to Law." ☞ And, if the Demand be

When the Officer is to demand Admittance in the Preſence of a Conſtable.

made between the Hours of *Eleven* in the Evening and *Five* in the *Morning*, it muſt be in the Preſence of a *Conſtable*, and he is to mention in his Demand, that a *Conſtable* is with him; but

but if the Demand be made between *Five* in the *Morning* and *Eleven* in the *Evening*, though at ſuch Time he may demand Entrance without a *Conſtable*, yet he ought, if poſſible, to have ſome ſufficient Witneſs preſent, to prove his demanding Entrance as aforeſaid; and after he has ſo done, he is to ſtay a *reaſonble* Time, before he goes away from the Houſe or Place, and muſt enter the whole of his Proceedings in his Book; and if it is poſſible for him to do it, he ſhould, when he is denied Entrance, acquaint the *Chandler or his Servant*, with the Danger of ſuch Behaviour, and the Penalty incurred by ſuch Refuſal.

A Witneſs ſhould be preſent when Entrance is demanded.

The Chandler or his Servant to be warned of the Penalty incurred by ſuch Refuſal.

CHAP. XII.

Concerning the Buſineſs and Duty of thoſe Officers of the Exciſe, who ſurvey Soap-makers, *ſo as to prevent their* evading *the Duty or* defrauding *the Revenue. Alſo of the* Drawback *on* Soap, *employed in making of* Cloths, *&c. and of making up the Accounts of the Manufacturers to obtain it, with the Forms of the Affidavits * required by Law.*

BEFORE I treat of the Duty of the Officer, I think it will be requiſite to give him ſome Inſight into the Way and Method of making the ſeveral Kinds of *Soap*.

The principal Ingredients, which are uſed in making *all Sorts* of *Soap*, are *Lyes* drawn from *Aſhes* or *Lime*, boiled up with *Tallow* or *Oil*, or both. The different Ways of making the ſeveral Sorts of *ſoft Soap* are various, and the Time that is required to bring it to Perfection ſomewhat uncertain; but it commonly takes up *Part* of *Two Days*, and, when 'tis boiled enough, it is put into Caſks. The Method of making *Ball-Soap* (which is commonly uſed in the *North*) is this: The *Lyes* are put into the Copper, and boiled about 24 *Hours*, until the *Wateriſh* Part be quite gone, and nothing but a Sort of *nitrous* Matter (which is the very Strength or Eſſence of the *Lye*) remaining; to which the *Tallow* is put, and the Copper kept boiling and ſtirring for above *Half an Hour*; in or about which Time the *Soap* is made; and then 'tis put out of the Copper into *Tubs* or *Baſkets* with Sheets in them; and immediately while it is ſoft, it is made into *Balls*. *Hard* Soap is generally boiled *at twice*; the *firſt* of which is called an *Half-Boil*; and, before that Operation

Of what and how Soap is made.

Various Sorts of ſoft Soap.

Ball Soap, what, and how made.

Hard Soap, how made.

Half boiled, what.

* It is not required that theſe *Affidavits* ſhould be on *Stamp-Paper*, and for the writing them the Officer is to take 4*d*. and no more.

tion is perfected, the *Lyes* are ſeparated from the Tallow Part by *Salt*, which is called *Graining*; then the Copper is charged again with *freſh* Lyes, which with the firſt *Half-Boil* is boiled until it be *grained* as in the firſt *Half-Boil*; after which, the *Soap* is taken out of the Copper, and put into a *Frame* to cool and harden.

Graining, what.

Is hardened in a Frame.

It has been frequently experienced, that a Boiling of *hard* Soap hath been made at one Operation, eſpecially where *Frauds* are intended; in which Caſe, nevertheleſs, the Makers pretend, that it is only *Half-Boil* and *imperfect*, yet in the Abſence of the Officer carry away all or Part thereof, and before his Return bring *freſh* Lyes and Tallow to ſuch a Forwardneſs in the Pan or Copper as to be taken for the pretended *Half-Boil* under the *ſecond* Operation. It is alſo well known, that it hath been a frequent Practice, after *perfect* Soap hath been put into the *Frame*, and the Officer hath taken an Account of it, to take a *Part* thereof out, and, then by *adding hot* Lyes to the Remainder, bring the Soap up to the ſame *Depth* and *Quantity* as it was before: For which Reaſon, if the Officer obſerves that any freſh Lyes are heating in any Pan or Copper, while the Soap is *hot*, or newly put into the *Frame*, a Fraud may reaſonably be ſuſpected, and by a ſudden Return diſcovered. There have been frequent Inſtances where Soap-makers have brought *Half-Boil* to be put into the Pan or Copper, and *new made*, under Pretence of its being *Wet-bottoms*, *Cuttings*, or *Scrapings* of *fram'd* Soap, and as ſuch have demanded an Allowance: But ſuch unfair Practices may probably be prevented or diſcovered by the *two* Obſervations following, *viz. Firſt*, Soap, if it be *ſtrong*, will be *very thick*, and what is taken up *near the Lye* will be *bright*, and have a Grain like Peaſe; and, if *ſqueezed* betwixt the Fingers, will *ſhine*, and *ſcale*, if bended; and ſuch Soap being put into the *Frame*, and no *Lyes* put to it afterwards, will *ſting* the *Tongue*, if touch'd with it. *Secondly*, But if Soap be *weak*, 'twill have a *faint Smell*, and the Body will be *thin*, and it will either have *no Grain*, or what is *very ſmall and pale*, and, if *ſqueezed* as above, will feel *greaſy*; it will be ſoft, becauſe not boiled to a *real Body*; and *dull* and *not ſmooth*, becauſe not purified with the *ſecond Lyes*.

Frauds in making of hard Soap.

Other Frauds by adding freſh Lyes.

Other Frauds by pretending Half-boil is Wet-bottoms, &c.

Nice Obſervations for preventing Frauds.

Of Foot-walks.

The Officer who has a *Foot-Walk* muſt ſurvey every Soap-houſe in his Diviſion *once* in *ſix* Hours, or oftener, when the Soap maker is at work; and he ſhould never leſs than *twice* a Day, when ſilent: And it is moſt adviſeable that it be done as *early* in the Morning, and as late at Night, as poſſible. But if he has received a Notice for working, or finds any *Preparation* for Work, or he ſuſpects any *Fraud* in any of theſe Caſes, he muſt be more frequent in his Surveys. The Officer that has a RIDE muſt ſurvey the Soap-makers as often *as poſſible* on *uncertain* Days, and at *uncertain* Times of the Day, when there is not a Notice depending: But if he has a Notice for working, he muſt contrive his Surveys to be at ſuch Times as may beſt prevent or detect Frauds; eſpecially, let him endeavour to

Of Rides.

ſurvey

ſurvey about the Time of *finiſhing*, and he ſhould ſtay if his other Buſineſs will permit till the Soap is ſtruck off.

No Soap-maker to make without giving the Officer 24 Hours Notice.

Take Notice, that no Soap-maker muſt *begin to make or work upon* any Making of Soap of any Sort or Kind whatſoever, nor put any *Lees* or *Lye* into the Copper or Pan for the making Soap, without giving to the Officer of the Diviſion where ſuch Soap is to be made, *Notice in Writing* of the particular Time and Hour, when ſuch Making is intended to be *begun*, 24 Hours before ſuch Beginning of every ſuch Making: But, in caſe ſuch intended Making of Soap ſhall not be begun to be worked upon, and to be actually making within *twelve* Hours after the Time mentioned in the Notice, *that Notice is void*, and the Soap-maker muſt not begin to make or work upon ſuch Making, without giving a *new* or other like Notice as aforeſaid. But if a *hard* Soap-boiler does not intend to go on with his *ſecond* Boil, as ſoon as he has finiſhed his *firſt Half-boil*, the Officer is to require him to mention, in his Notice, the Time when he intends to begin to work on his *ſecond Boil*; and if he does not go on with his *ſecond Boil* according to the Time mentioned in that Notice, he muſt give a *new* Notice in the Manner before mentioned; ſuch *ſecond Boil*, being in the Intention of the Law, a *beginning to work*. Now when the Officer receives a Notice for Working, he muſt immediately enter it on his Book 1. The Time when he read it. 2. The Perſon's Name who ſigned it. 3. The Time of their beginning to work, and put the Notice on a File for that End and Purpoſe. It is highly requiſite, that where the Officer meets with the Making of *Soft* Soap lying upon the *Damp*, either knitting, or immediately before it be cleanſed into the Caſks, he ſhould take the *dry Inches* of the Copper, at ſome *fixt* or remarkable *Place* thereof, and enter the ſame in his Book, in order to diſcover whether any Part thereof hath been conveyed away, before his ſucceeding Viſit; or to make *an Eſtimate* from the Produce of ſome *preceeding* Boilings, what any *ſucceeding* Boilings will be; and where the Diſparity is conſiderable, a *Fraud* may be ſuſpected. The Officer, *before 'tis boiled off*, muſt take and enter the exact *Tare* of each *Caſk* upon it, and alſo enter the ſaid *Tare* at the End of his Book, and give neceſſary Attendance at the emptying it out of the Copper; inſerting in his Book the Numbers and Sizes of each Sort of Caſks, which are, or ought to be, *Barrels*, *Half-Barrels*, *Firkins*, or *Half-Firkins*; each Barrel containing 256 *lb.* and the Firkin 64 *lb. Avoirdupoiſe*, beſides the Weight or Tare of the Caſk. Then as to *Ball Soap*, the chiefeſt Security of the Duty depends upon a due Attendance of the *Cleanſings*, and therefore the Officer is more particularly required to be preſent at the Time of its being ſtruck out of the Copper, and alſo at the Time of *Tallowing*, and to continue there till it is *ſtruck off*; and to weigh the ſame, before it be made

And if he does not begin in 12 Hours after the Time mentioned in ſuch Notice, the Notice to be void, and a new Notice muſt be given.

Notice muſt be given of working the ſecond Boil.

Muſt take the Notice in, *&c.*

What ſuch Entry muſt ſet forth.

How the Officer may guard againſt Frauds.

Muſt enter the Tare, and mark it on the Caſk.

And attend whilſt emptying out of the Copper.

What a Barrel, and what a Firkin of Soap contains.

Of ſecuring the Duty on Ball-Soap.

When it muſt be weighed.

Returning Soap into the Copper, upon Pretence of keeping it warm. The Officer ſhould make ſudden Returns.

made into *Balls*. ☞ By all means the Officer muſt take care that the *Soap-Boilers* do not impoſe upon him, by *returning* Soap *not thoroughly tallowed*, into the Copper, if it has been weighed, under a Pretence of keeping it *warm*, and afterwards add *freſh Tallow* to it; and therefore, in order to prevent the *Soap-Boilers* ſo doing, the Officer ſhould, as often as poſſible, make a *ſudden Return* after he has weighed it. The Officer, if it be poſſible, ſhould always be at the Houſe before they begin the Cleanſing of *hard Soap*, and attend till it is all put into the Frame. Alſo it is very neceſſary, at the *coming off* of any Sort of Soap, to inſpect in a more particular Manner the *enter'd* Parts of the Houſe, and where the Officer ſuſpects a Fraud, *ſuch other Parts*, as may be uſeful for that Purpoſe.

And ſhould attend before the Cleanſing of hard Soap, &c.

At the coming off of a Boil to examine the Houſe.

Of the Scales and Weights. To obſerve the Surface of the Soap in the Frame and comparing the Weight and the Frame Gauge.

When any *Boiling* of Soap is to be *weighed off*, great Care ſhould be taken that the *Weights* and *Scales* are *juſt*; alſo it ſhould be obſerved from the *Surface* of the Soap, or otherwiſe, whether any Part of the Boiling hath been diminiſhed; and where the Weight of *Hard-Soap* comes ſhort of the *fram'd* Gauge, *one Pound in Ten*, or in Proportion thereto, he may reaſonably ſuſpect a Fraud, and in ſuch Caſes make the Charge from the *Frame*-Gauge. It will be expected from the Officer, where he can attend the *cutting up* of a Boiling of Soap, that he enters down in his Book the Number of Pieces, into which it is cut (provided the ſame be not weighed off before he departs the Houſe;) which he muſt have a ſtrict Regard to, upon the Weighing; and enter the particular Number againſt each Draught; *but he* muſt at all Times endeavour to weigh it off in *Slabs* before it be cut into ſmall Pieces like Bricks; and this for a Reaſon which I need not ſuggeſt. *N. B. That the* Cubical Inches *contained in a* Pound of hard *Soap, are* 27.14, *which Number is the common* Diviſor, *for* ſquare Meaſure, *and* 5.2 *the* Gauge Point *on the Rule*; and 34.55 *the* Diviſor *for* circular Meaſure. 5.878 *will be the* Gauge Point *on the* ſliding Rule. *N. B. That the* Cube Inches *in a* Pound *of* Green ſoft Soap *are* 25.67, *and* 5.07 *the* Gauge Point; *ſo that* 32.68 *will be a common* Diviſor *in all* circular Meaſure, *and* 5.716 *the* Gauge Point *on the Rule for* this Sort. *N. B. That the* Cube Inches *in a* Pound *of* White ſoft Soap *are* 25.56, *and* 5.05 *the* Gauge Point; *therefore* 32.54 *will be a common* Diviſor *in all* circular Meaſure, *and* 5.704 *the* Gauge Point *on the* ſliding Rule. ☞ The Officer, when any Soap-maker offers to return into the Copper, *decayed*, *rotten*, or *Cuttings* and *Scrapings* of good Soap, to be refreſhed and *new* made: I ſay, on theſe Occaſions, the Officer is to endeavour, by the beſt Means he can, to diſcover whether it is *Soap*, or an *Half-Boil* only intended to be impoſed upon him as Soap; and if Soap, whether the Duty hath been *paid* or charged for the ſame; and if he cannot receive full Satisfaction therein, he is to make no Allowance in reſpect thereof. ☞ Nor is he

Of Hard Soap, with the cubical Inches in a Pound, and Diviſor for ſquare and circular Meaſure, and the Gauge Point. Of Green Soft Soap with cubical Inches in a Pound, and Diviſor for circular Meaſure, and the Gauge Point.

Of White Soft Soap, with cubical Inches in a Pound, and Diviſor for circular Meaſure, and the Gauge Point.

to

to make Allowance for *any Soap returned into the Copper*, except the Soap-maker has given him *Notice in Writing* of his Intention to return ſuch Soap 24 Hours before the Time of putting the ſame into the Copper; and, as ſoon as any ſuch Notice is given, the Officer muſt enter it in his Book under his laſt Survey, and put the Notice on a File; and, if the *Superviſor* be in Town, he is to be informed, that he may ſee the ſame returned; but in Caſe the Superviſor cannot be applied to, or cannot attend, and there be *any other* Officer (or Officers) who reſide in the *ſame* Town, the *proper* Officer ſhould give Notice to *ſuch* Officer, (or to ſuch of the Officers as can beſt attend;) that he, as well as the proper Officer, may ſee the *Soap* weighed, put into the Copper, and melted down: And the *Superviſor*, or the Officer, who ſees it returned, muſt ſign the *proper* Officer's Books, to atteſt or witneſs the ſame *.

The Superviſor or ſome other Officer muſt be preſent with the proper Officer to ſee the Soap returned.

Of the Drawback on SOAP.

All Soap *ſpent*, *employed*, or *conſumed* in making *Cloths*, *Serges*, *Kerſies*, *Bays*, *Stockings*, or *any other* Manufactures made of *Sheep*, or *Lambs Wool*; or in *preparing* the Wool for the ſame, or in *whitening new* Linen in the Piece, on *Oath* or *Affirmation* of the *Workmen*, is intitled to a *Drawback*.

Soap ſpent in making Cloths, &c. to have a Drawback.

And *one* Pound of *Soap* is allowed to *ſcour* or *waſh* twenty Pounds of *Worſted Yarn*.

One Pound of Soap to 20 Pounds of Worſted Yarn.

And *half* a Pound of *Soap* is allowed to ſcour *one Piece* of *Burying Crape* made of Sheep or Lambs Wool in *England*; and that, for *every Dozen Pounds* of Soap thus uſed, there ſhall be a *Drawback* of the Duty of 10 *d.* to every Dealer.

and half a Pound of Soap to a Piece of Crape.

Now in making up of any *Scowerer of Worſted*'s Accompt, in order to have the *Drawback*, if they are unacquainted with it, and therefore have not had any Allowance, but, being informed of it, would have Accompts drawn up for that Purpoſe; they muſt propoſe ſome *certain limited Time*, allowing *ſome Quantity* of Soap uſed *each Week*, or elſe *a Quantity of Worſted*, or *Pieces of wrought Woollen every Week*, and then by the *Proportions* and following Work their Accompts may be ſtated.

Inſtructions for making up thoſe Accompts.

Example I. Suppoſe a *Scowerer* has uſed *two* Pounds of Soap *per Week*, and his Accompt is of *eight* Years ſtanding, how muſt this Accompt be ſtated?

An Example.

* See *Page* 322.

See *the Work.*

Operation.

	Weeks.	*Days.*	*Hours.*
One Year is	52	1	6
	7		
	365 *Days.*		
	24		
	1466		
	730		
	8766 *Hours* in a *Year.*		
	8 *Years.*		
	7		

24)70128(2922(417 *Weeks* and 3 *Days.*
···· *Days.* 2 *Pounds of Soap* uſed in *each* Week.

834 *Pounds of Soap* uſed in *eight* Years.

Now to find the *Pounds* of *Worſted* uſed in *eight* Years according to Law.

Soap.	*Worſted.*	*Soap Pounds.*
lb.	*lb.*	*lb.*
As 1 *is to*	20, *ſo is*	834
		20

Anſwer 16680 *Pounds of Worſted.*

The Form of an Affidavit.

The Form *of the* Affidavit *is this:*

From May 19, 1728, *to* May 16, 1736, *incluſive.*

I *William Aſley*, Weaver, living in *Gravel-Lane*, in the Pariſh of St. *Botolph Aldgate*, *London*, make Oath, that I have uſed *Eight Hundred and Thirty-four Pounds* of *Britiſh Soap*, in ſcouring of *Sixteen Thouſand, Six Hundred*, and *Eighty Pounds* of *Worſted* made of Sheep or Lambs Wool, at *Gravel-Lane*, aboveſaid, from *May* 19, 1728, to *May* 16, 1736, *incluſive*, for which I have had no Allowance according to Act of Parliament in that Behalf made.

2*l.* 17*s.* 11. WILLIAM ASLEY.

How to money it.

To *money* this (or any other of this kind) this is the Work.

lb.	*d.*	*lb.*
As 12 *is to*	10, *ſo is*	834
		10

12) 8340(695) 57(2 17 11
··· *Pence.*

Anſwer 2 17 11

Ex-

Example II. If I have 16680 Pounds of *Worſted Yarn*, how many *Pounds* of *Soap* will they take to ſcour them? Example II.

See *the Work.*

Operation.

lb. Soap. lb. Worſted.
As 20 *is to* 1, *ſo is* 16680
1

20) 16680 (834 Pounds of *Soap.*

The Form *of an* Affidavit *for Pieces of* Burying Crape. An Affidavit for Burying Crapes.

From Sept. 3, 1735, *to* Jan. 6, 1736, *incluſive.*

I *Thomas Neſom*, Weaver, living at the Sign of the *Crown* in *Hollywell-Lane*, in the Pariſh of *St. Leonard's Shoreditch*, in the County of *Middleſex*, make Oath, that I have uſed *Seven Hundred and Ten Pounds* of *Britiſh-Soap*, in ſcouring of *One Thouſand four Hundred and twenty Pieces of Burying Crape*, made *of Sheeps* or *Lambs* Wool, at *Hollywell-Lane*, aboveſaid, from *Sept.* 3, 1735, to *Jan.* 6, 1736, *incluſive*, for which I have had no Allowance according to Act of Parliament in that Behalf made.

2 *l.* 9 *s.* 3 *d.* 2¾ *q.* THOMAS NESOM.

N. B. If the *Workman* moves *from one Place to another*, in the Time for which *the Entry* is made, he muſt mention *each particular Quantity* of *Soap* uſed at *each ſeparate Place* of his Abode. What to be obſerved, if the Workman has removed.

CHAP. XIII.

Concerning the Buſineſs *and* Duty *of thoſe Officers of the Exciſe who ſurvey* Starch-makers, *ſo far as to enable them to underſtand the Nature of that* Manufacture, *and to prevent the Maker from* evading *the Duty or* defrauding *the Revenue.*

BEFORE I treat of the *Duty* of the Officer, I think it highly requiſite to inform him of the Way and Method of *making* STARCH, which is as follows.

1. When *Wheat* is ground, the *Meal* of it is put into a large Veſſel or *Fat*, and then *Water* is put to it, where it lies and *ferments* from *ſeven* to *fourteen* Days, according as the Seaſon Of what Starch is made. How long a fermenting.

of the Year or Weather keeps it back, or forwards its Operation.

It ſettles to the Bottom, the Water drawn off. The Meal put into freſh Water, and ſtrained.

2 When it hath had *ſufficient* Fermentation, it will ſettle to the *Bottom* of the Fat; and then, the Water being taken off, the *ſettled* Part is diſcharged from the *Fat* into a *Tub*, and there, as it is put into the Tub, it is ſtirred up with *freſh Water*, and then ſtrained through a *Hair-ſieve*, (to ſeparate the coarſe Bran from it) into ſeveral *other* Tubs, which are called *Sour-Waters*, where it commonly lies *two Days*, in which Time, not being diſturbed, the *Meal* will ſettle to the *Bottom*.

Settles to the Bottom. Is ſtrained thro' a Lawn-Sieve.

3. The *Water* is then taken or drained off, and then the Tubs are turned upon their *Sides* or *Edges*, and the Surfaces of thoſe Bottoms are daſhed with *freſh Water*, and what is ſo waſhed off is called *Slimes*; the Tubs are then turned upon their *Bottoms* again, and what remains is ſtirred with *freſh Water*, and then ſtrained into other Tubs through a *Lawn-Sieve*; two or three *Sour-waters* are generally waſhed into one, which are called *Green-waters*; when it has lain thus *two* or *three* Days, the *Green-ſtarch* is ſettled to the Bottom; and then the Water is taken off, and the Tubs turned on their *Sides* or *Edges* when, the Surfaces of the Bottoms are daſhed with freſh Water, and that which is thus waſhed off, is called *White-waters*.

Is put into Boxes to be dried.

4. Then the *Green-ſtarch* which remains at the Bottom, is put into the *Boxes*, (wherein it muſt be gauged) and in a little Time it will he drained and grow hard. After this, it is turned out of the *Boxes*, and broke into to large Pieces, which are laid upon Bricks to dry, where it commonly lies from two to three Days.

Is put into the Stove.

5. It is then taken down and put into the *Stove*, for the Space of *two* Days, when it will come, which they call a Cruſt, *i. e.* it will be covered with a hard Subſtance, which, being ſcraped off the *Pieces*, are put into the *Stove* again, and the *Scrapings* are laid upon *Hair-cloths*: The *Scrapings* will be dry and fit to weigh off in *two* Days; and, in *one* Day more, the *Pieces* will be *grained*, *viz.* they will become Starch fit for Sale.

Officer muſt ſee they make Entries.

The Officer muſt be careful that all the Starch-makers under his Survey do make Entries of all their Work-houſes, Store-houſes, or other Places, together with all their Tubs, Fats, Boxes, Troughs, Stoves, Kilns, *&c.* for making, drying, or keeping of Meal, Flour, Starch, or any other Materials requiſite to be made into Starch. All which Entries he muſt copy into a Book, and deſcribe the Situation of the *Drying-places*, *Rooms* and *Store-houſes*, as is directed in *Chap.* III. and V. in relation to the Exciſe on Malt.

The Veſſels and Boxes muſt be numbered.

The Officer muſt *number* and *gauge* all *Fats* and *Boxes*, and enter their *Dimenſions* and *Areas* in his *Dimenſion-book*, noting that the Areas of the *Fats* are to be in *Buſhels* and *decimal Parts*; but the Areas of the *Boxes* in *Pounds* and *decimal Parts*. In the *Beginning* of every *Starch-book*, the Officer muſt enter, (from

(from his Dimenſion-book) the *Dimenſions* and *Areas* of each Starch-maker's *Fats* and *Boxes*; and alſo a *Scheme* of their *Entries*. As to the finding the *Areas* of the Fats, Experience has diſcovered, that *one* Buſhel of Meal, after it has done *fermenting* and is *ſettled*, contains 2300 *cubical Inches*; and therefore 2300 is the *Diviſor* for finding the *Areas* (in *Buſhels*) of any *ſquare* Veſſel, and 2928.45 is the *Diviſor* for finding the Areas of any *circular* Veſſel, and 54.1 is the *Gauge Point* on the *Sliding Rule*. The Officer muſt likewiſe *note*, that he is to reckon 25 *Pounds* of Starch for every *Buſhel* of Meal, ſo that the *Number* of *Buſhels* of *Meal* in any making being *multiplied* by 25. the *Product* will be equal to the Number of Pounds of Starch ſuch Quantity of Meal is thus ſuppoſed to yield or produce as aforeſaid. Then, as to finding the *Areas* of the *Boxes*, it has been diſcovered, that the *cubical* Inches contained in a Quantity of *green* Starch, which will produce a *Pound* of *dry Starch*, is 34.809, and that is the *Diviſor* for finding the *Areas* (in *Pounds*) of *ſquare* Veſſels of *green* Starch, and 44.32 is the *Diviſor* for finding the *Areas* in *Pounds* of *circular* Veſſels, and 6.66 is the *Gauge Point* on the *Sliding Rule*. When the Officer finds that the Number of *Pounds* of Starch, according to his *Gauge* in the *Fat*, do conſiderably exceed his other Accompts from the *Boxes* and *Weight*, ſo that he has Cauſe to ſuſpect a *Fraud*, he is then to charge from ſuch *Gauge* in the *Fat*; but, otherwiſe, his Charge muſt be made from his *Gauge* in the *Boxes*, or from the *Weight*, whichſoever of them is *the beſt*.

Of finding the Area and Gauge-Points.

The Officer, in the Place of his Reſidence, muſt ſurvey each Starch-maker at *leaſt once* every Day when there is any *Steeping* in the Fats, or *four Waters* depending; but, when there are *green* or *white Waters* depending, not leſs than *two* or *three* Times a Day, and he muſt do it *oftener* (if it be poſſible) when they are a *boxing* or ſetting *the Stove*, and *twice* a Day when the *Stove* is *drying* after it hath been the *ſecond* Time ſet. The Officer muſt ſurvey Starch-makers in his Ride as often as the Security of the other Duties, under his Care, will permit: and this he muſt do at *uncertain* Times. But when the Starch hath paſſed its *laſt Straining*, he ſhould be very frequent and cloſe, that, if it be poſſible, he may get a *Gauge* of the whole in the *Boxes*. The Officer muſt, every Survey, obſerve the Condition of *each Fat*, but he need not to enter in his Book an Account of the *Fats*, unleſs when he finds *an Alteration* therein; but after it has done formenting, and is ſettled, he muſt, if poſſible, take a *Gauge* of each *Steeping* in the *Fats*. The Officer muſt enter, in his Book, the *Number* and *Condition* of the ſeveral Sorts of Water-tubs, *viz.* the *Number* of the Tubs of *four* Water, *green* Water, *&c.* and alſo the *Condition* of the *Stove*. At the Time the Officer ſurveys, he muſt carefully examine all the *entered Rooms*, and ſuch *other*

Of four Water and the Tubs.

Condition of the Fat to be obſerved.

And Water-tubs,

Places as may be convenient for carrying on a *Fraud*; and he muſt likewiſe obſerve the Condition of the Starch, from Time to Time, that he finds *in the Boxes*, in order to diſcover if it may be the ſame he took an Account of the *laſt* Survey, or not; and this will prevent the Maker's impoſing upon him by their *breaking out* Boxes, and filling them again between his Surveys, and then pretending they are the ſame he had before taken an Account of. Since in *each* Making, the Starch-makers do uſually break into a *like* Number of *Pieces* out of the ſame Box or Boxes, the Officer, by computing the *Number* of *Pieces* from the *Boxes* he had gauged, and by comparing them with the *Size* and *Number* of the *Pieces* he finds from Time to Time lying upon the Bricks, may diſcover whether he has been impoſed upon by running of *Boxes* or *green* Starch from the Tubs; it is neceſſary he ſhould, at the *Time of weighing*, after the Stove is *dried off*, count the Pieces he finds *ſtanding* in the Stove, and compute a Number of Pieces for what is *broke down*; I ſay, from the *Weight* of thoſe compared with what is *ſtanding*, he may eaſily diſcover whether any conſiderable Quantity hath been carried away before it was weighed.

Of the Boxes.

Without great Care, the Officer may eaſily be impoſed upon in the *white* Waters and *Slimes*, by the Makers repreſenting them to be of *little or no Value*; and therefore with a Stick, or otherwiſe, he muſt get up ſome of what is at *the Bottom*, and examine its *Quality* and *Quality*, by which he may judge what he is to expect from it. The Officer is to obſerve, that Starch will ſettle at the Bottom of *green Starch-tubs* very cloſe after it has ſtood ſome Time, but by taking the *Diameters* of the Tubs, and the *Depths* of the Starch (which we may eaſily find by taking the *Inches* from the *Surface* of the Starch to the *Top* of the *Tub*) he may compute *very near* the Quantity of Starch in ſuch Tubs contained.

Of white Waters, and Slimes, *&c.*

The Officer having taken proper Care that he is not impoſed upon by unjuſt *Scales* or *Weights*, for [the Law obliges all Starch-makers to keep *juſt* and *ſufficient* Scales and Weights for weighing their Starch, and to aſſiſt the Officer in making uſe of them] he muſt weigh the Starch, and muſt immediately enter into his Book the exact Weight of *each* Draught; and he muſt obſerve that all the *Starch* and *Scrapings* be brought out of the Stove and weighed: and he muſt not ſuffer the Makers to bring their Starch out of the Stoves and break it down upon their Dreſſers *to cool* before weighing, but inſiſt on having it weighed; and alſo the Scrapings, whilſt it is *hot* (or at leaſt whilſt it is *warm*) that he may be able to diſtinguiſh the *new* from the *old*; and he is to obſerve that the *Scrapings* uſually amount to an *eight* or *tenth* Part of the Making.

See Page 199.

Muſt be weighed when warm.

Where the Officer ſurveys Starch-makers that *weather-dry*, he muſt number all the Places or *Lattices* for laying Starch to dry,

Of Weather-drying.

dry, and, as ſoon as any Making is carried to dry, he muſt enter the *Number* of the Place where ſuch making *is laid to dry*, and make proper Obſervations until it is dried. Several Officers have been groſly impoſed upon by the Makers running *foreign* Starch, and pretending it was made in *England*; to prevent which, and ſeveral other Frauds, the Officer muſt take an Account of the *old Stock* of Starch in each Maker's Cuſtody (if poſſible) every Time the Stove is ſet *after Scraping*; and alſo when he weighs off the Making; and likewiſe at the End of every Round, and at ſuch other Times as the Surveyor or he ſhall judge neceſſary: and that he may take ſuch Stock with the greater Certainty and Eaſe, before any Starch ſhall be put into any *Caſk* or other *Veſſel*, in order to its being weighed or kept therein, he muſt take the *Tare* of ſuch *Caſk* or *Veſſel*, *&c.* and mark it thereon; and he muſt alſo enter ſuch *Tare* at the End of his Book; and, when he ſhall take Account of the Stock, he muſt *number* all the Veſſels containing the ſame with 1, 2, 3, *&c.* and enter thoſe Numbers in a Column titled for that Purpoſe, at the End of his Book, and againſt each Number he muſt put the *net* Weight, *&c.*

Of running foreign Starch.

Tho' Starch-makers generally ſell their *Scrapings* for Starch, or for making of *Hair-powder*, or *Paſte*, *&c.* yet it ſometimes happens they do not do ſo, but return them into the Fats in the Officer's Sight; in which Caſe he muſt take an Account of *the Weight*, and make an *Allowance* for the ſame out of the Gauges of thoſe Makings, whereof ſuch *Scrapings* are a Part. But then he muſt never make Allowance for more than he *actually ſees* returned into the Fats and diſſolved. Generally Scrapings are returned *green*, or *not fully dried*, for which the Officer ought to allow no more than it might reaſonably be ſuppoſed ſuch Scrapings would weigh in caſe they had been dried; and, for drying, it has been uſual to allow *One fifth Part*. But if the Officer has Reaſon to believe that any *Meal*, *Flour*, or *run Starch* hath been mixed with *the Scrapings*, he is not to make any Allowance for any ſuch Scrapings.

Of returning Scrapings.

Of green Scrapings.

The Condition of the Houſe muſt be entered on a *Specimen-paper*, each Survey the Officer makes; and he muſt take Care that the Starch-makers give Notice *in Writing*, of the *Time*, they intend to *box* Starch, *Twenty-four* Hours at leaſt before they *begin to box*, for ſo the Law directs; and he is to atttend *the Boxing* as frequently as his other Buſineſs will permit.

Of the Specimen-paper.

Of boxing the Starch.

☞ All ſuch other Injunctions and Reſtrictions contained in the *Exciſe*, *Malt*, or *any other* Inſtructions, as far as they are applicable to this Duty, the Officer muſt punctually obſerve and comply with, as if the ſame were here at large repeated.

CHAP. XIV.

Concerning the Buſineſs *and* Duty *of thoſe Officers of the Exciſe, who ſurvey* Paper-Makers, *ſo far as to enable them to underſtand the Nature of that Manufacture, and to prevent the Makers from* evading *the Duty, or* defrauding *the Revenue.*

The ſeveral ſorts; of what and how Paper is made.

BEFORE I treat of the Duty of the Officer, I think it is requiſite to inform him of the *Way* or *Method* of making Paper, which is as follows:

The different Kinds of Paper are made either of *Rags*, *Cables*, or *Ropes*, &c. and *Writing* or *Printing* Paper is made of the *finer* Rags, and *ordinary* or *Brown* Paper of the *coarſe* Rags, Ropes, Cables, *&c.* When the Rags are *ſorted* and *waſhed*, they are put into Troughs called *Mortars*, each Mortar having to it *five Hammers:* In theſe Mortars the Rags are beaten into what is called *Half-Stuff*, and then they are laid to *mellow* in Tubs, Binns, or Cheſts, in ſome Part of the Mill or Corner of the Out-houſe; and when they are *ſufficiently* mellowed, they are put into the Mortars *again*, and beaten until made into *Fine-Stuff*; and they are then fit to be made into Paper. In the Mill there is a Veſſel called a *Fat*, but more properly a *Copper*, becauſe there is a Fire kept under it; and into this Fat the Stuff that is ſo beaten is put to a ſufficient Quantity of Water, and kept to a *certain Degree of Heat*, about luke-warm, and this is the *laſt* Preparation for making Paper. There are *Moulds* to anſwer *each Size* of Paper deſigned to be made, and the *Bottom* of each Mould is of *Braſs Wire*, ſomewhat reſembling a fine Sieve; and theſe Moulds are dipped into the *Fat*, and are ſo handled by the Dexterity and Skill of the Workman, that the Water runs thro' the Wires of the Mould, and the beaten Stuff only remains behind therein; and then it is gently turned out of the Mould, and laid on a Woollen Cloth, which is called *a Felt*, and, when it is laid on the Felt, it appears as a perfect Sheet of Paper; then another Felt is laid upon *that Sheet*, and again another Sheet upon *that Felt*, and ſo on till they have raiſed an Heap of *ſeven* or *eight* Quires, which is called a *Poſt*. *Note*, That *each* Poſt generally contains the *ſame Number* of Quires, as there are *Reams* intended to be made *that* Day: But ſome Workmen will make but *five* Quires in a Poſt, and then he makes 28 or 30 Poſts in a Day, which makes the ſame Quantity. The Poſt being put into a *Preſs*, and preſſed very hard together, till the Water is ſqueezed out; it is not ſuffer'd to continue in the Preſs, but it is *immediately* taken out again, and the Sheets of Paper, being taken from betwixt the Felts, are laid one upon the other till *the next Day*, and then are hung

Of the Hammers and Mortars.

Of Half-Stuff, and mellowing it.

Of Fine-Stuff.

Of the Fats.

Of the Moulds.

Of the Felt.

A Poſt of Paper what.

Difference in Poſts.

Of the preſſing in Poſts.

hung up, on Lines called *Trebles*, in the *Drying-Houſe*, in Parcels of three, four, or five Sheets in each Parcel; they have no certain Time of hanging, but in *Winter* they hang much longer than in the *Summer*. As ſoon as the Sheets are dry, they are taken down again, and are *flatted* and laid *in Piles*, and then *ſized*, that is, they are wetted in *Size*; after that, when the Quantity of ſeveral Reams has been put one upon another, they are preſſed again, leaving a ſufficient Quantity of *Size* therein for the bearing of Ink, when wrote upon. After this, they are hung to dry a *ſecond Time* in Parcels of three or four Sheets at the moſt, and, when they are dry again, they are taken down from the Lines and ſorted, when the Sheets which are broken and *faulty* are ſeparated from the *good*, and both counted into *Quires:* After this is done, they are preſſed two or three Times till made ſmooth, and then tied up into *Reams* or *Bundles* for Sale. *Note*, That 18 of the *good* Quires, and 2 of the *broken* go to each *Ream*; and 36 of the *good*, and 4 of the *broken* to each *Bundle*. N. B. *Brown* and *whited brown* Paper are made after the ſame Method, but they are ſooner finiſhed, becauſe but once hung up to dry, before preſſed, and made up into Reams or Bundles for the Market.

Of drying the Paper.

Time taken up in drying or fizing.

Dried a ſecond Time.

Of ſorting.

What is a Ream, and what a Bundle of Paper.

Of brown and whited-brown Paper.

Having deſcribed to the *Officer* the Manner of making Paper, I ſhall furniſh him with three very *uſeful* Tables, and then conclude this Chapter with ſuch *Cautions* and *Inſtructions*, as are requiſite to advance that Branch of the Revenue.

Three very uſeful Tables.



The

The First Table.

A Table of the Names and Dimensions of those Sorts of Papers, that are usually made in *England*, and also the *Quantity* of each Sort that is commonly reckoned a *Day's Work*.

NAMES *of Paper.*	Dimensions of each Sheet. *Length.*	*Bread.*	How many Reams of each Sort usually made in a Day.	
BROWN PAPERS.				
Large Cap, called *Bagg Cap* —	23	19	6	
Kentish Cap —— ——	21½	18	6½	
Western Cap —— ——	20½	17½	7	
Small Ordinary —— ——	18	15	7½	
Ditto 2 Pounds —— ——	22	14	7	1 Ream makes a Bundle.
Ditto 1 Pound double ——	18	11½	7	1 Ream makes a Bundle.
Ditto ½ Pound double ——	19½	15½	7½	1 Ream makes 2 Bundles,
WHITED BROWN.				
Called *Lomb. Hand* ——	21	17	6½	
Royal —— ——	24	19	6½	
Middle *French* —— ——	21	17½	6½	
Small *French* —— ——	19½	16	7	
Middle Hand —— ——	20	16	7	
Small Hand —— ——	18	14½	8	
Cut Hand —— ——	23	15	7	1 Ream makes a Bundle.
PRINTING SUPER ROYAL.	23½ by	23	4	
Printing Royal —— ——	23½	18½	5	
Royal Blue —— ——	23½	18½	5	
Cartridge Paper ——	23½	18½	5	
Printing Demy —— ——	19¾	15¾	7	
Writing Demy —— ——	19	15¼	7	
Demy Blue —— ——	19¾	15¾	7	
Large Post —— ——	19	14¾	7	
Crown —— —— ——	18¼	14½	8	In some Mills they make nine Reams in a Day.
Printing Fools Cap ——	17½	15½	8	
Writing Fools Cap ——	16	13	8	
Fan Paper large —— ——	22½	14¼	7	
Fan Paper small —— ——	18¼	14¼	8	
Chancery double —— ——	22	14¾	7	
Bastard or Double Copy ——	19	14¾	7	
Pot —— —— ——	15½	12¼	8	In some Mills 9 in a Day.

N. B. Notwithstanding the *Length* and *Breadth* of Paper are not exactly the same in every Mill, yet the Difference is so very little, that they may be easily known from *other* Sorts.

The

The Second TABLE.

Of the *Names* and *Rates* (as ſet forth in the Acts of Parliament) of the ſeveral Sorts of Papers which are made in *Great-Britain*, liable to Duty; which Duty is under the Management of the Honourable Commiſſioners of Exciſe.

	l.	*s.*	*d.*	
Demy Fine	0	2	3	*per Ream.*
Demy ſecond	0	1	6	
Crown Fine	0	1	6	
Crown ſecond	0	1	1½	
Fools Cap Fine	0	1	6	
Fools Cap ſecond	0	1	1½	
Fine Pot	0	1	6	
Second Pot	0	0	9	
Brown large Cap	0	0	9	
Small ordinary brown	0	0	6	
Whited brown	0	0	9	*per Bundle.*
Paſte-boards, Mill-boards, and Scale-boards	0	4	6	*per C. Weight.*
Printed, Painted, or Stained Paper for Hangings	0	0	1½	*per Yard ſquare.*

ALL OTHER Papers, *White* or *Brown*, or of any *other Colour* or *Kind*, pay a Duty of 18 *l. per Cent. ad Valorem.*

The

The Third TABLE.

A New TABLE for the EXCISE on Paper, at 18 l. per Cent. ad Valorem.

Value being	The Duty is				Value being	The Duty is					Value being	The Duty is					Value being	The Duty is				
				100						10						10						10
s.	d.	s.	d.	q. pts.	l.	l.	s.	d.	q.	pts.	l.	l.	s.	d.	q.	pts.	l.	l.	s.	d.	q.	pts.
0	0¼	0	0	0 .18	1		3	7	0	.8	35	6	6	0	0		69	12	8	4	3	.2
0	0½	0	0	0 .36	2		7	2	1	.6	36	6	9	7	0	.8	70	12	12	0	0	
0	0¾	0	0	0 .54	3		10	9	2	.4	37	6	13	2	1	.6	71	12	15	7	0	.8
					4		14	4	3	.2	38	6	16	9	2	.4	72	12	19	2	1	.6
0	1	0	0	0 .72	5		18	0	0		39	7	0	4	3	.2	73	13	2	9	2	.4
0	2	0	0	1 .44	6	1	1	7	0	.8	40	7	4	0	0		74	13	6	4	3	.2
0	3	0	0	2 .16	7	1	5	2	1	.6	41	7	7	7	0	.8	75	13	10	0	0	
0	4	0	0	2 .88	8	1	8	9	2	.4	42	7	11	2	1	.6	76	13	13	7	0	.8
0	5	0	0	3 .60	9	1	12	4	3	.2	43	7	14	9	2	.4	77	13	17	2	1	.6
0	6	0	1	0 .32	10	1	16	0	0		44	7	18	4	3	.2	78	14	0	9	2	.4
0	7	0	1	1 .04	11	1	19	7	0	.8	45	8	2	0	0		79	14	4	4	3	.2
0	8	0	1	1 .76	12	2	3	2	1	.6	46	8	5	7	0	.8	80	14	8	0	0	
0	9	0	1	2 .48	13	2	6	9	2	.4	47	8	9	2	1	.6	81	14	11	7	0	.8
0	10	0	1	3 .20	14	2	10	4	3	.2	48	8	12	9	2	.4	82	14	15	2	1	.6
0	11	0	1	3 .92	15	2	14	0	0		49	8	16	4	3	.2	83	14	18	9	2	.4
1	0	0	2	0 .64	16	2	17	7	0	.8	50	9	0	0	0		84	15	2	4	3	.2
2	0	0	4	1 .28	17	3	1	2	1	.6	51	9	3	7	0	.8	85	15	6	0	0	
3	0	0	6	1 .92	18	3	4	9	2	.4	52	9	7	2	1	.6	86	15	9	7	0	.8
4	0	0	8	2 .56	19	3	8	4	3	.2	53	9	10	9	2	.4	87	15	13	2	1	.6
5	0	0	10	3 .20	20	3	12	0	0		54	9	14	4	3	.2	88	15	16	9	2	.4
6	0	1	0	3 .84	21	3	15	7	0	.8	55	9	18	0	0		89	16	0	4	3	.2
7	0	1	3	0 .48	22	3	19	2	1	.6	56	10	1	7	0	.8	90	16	4	0	0	
8	0	1	5	1 .12	23	4	2	9	2	.4	57	10	5	2	1	.6	91	16	7	7	0	.8
9	0	1	7	1 .76	24	4	6	4	3	.2	58	10	8	9	2	.4	92	16	11	2	1	.6
10	0	1	9	2 .40	25	4	10	0	0		59	10	12	4	3	.2	93	16	14	9	2	.4
11	0	1	11	3 .04	26	4	13	7	0	.8	60	10	16	0	0		94	16	18	4	3	.2
12	0	2	1	3 .68	27	4	17	2	1	.6	61	10	19	7	0	.8	95	17	2	0	0	
13	0	2	4	0 .32	28	5	0	9	2	.4	62	11	3	2	1	.6	96	17	5	7	0	.8
14	0	2	6	0 .96	29	5	4	4	3	.2	63	11	6	9	2	.4	97	17	9	2	1	.6
15	0	2	8	1 .60	30	5	8	0	0		64	11	10	4	3	.2	98	17	12	9	2	.4
16	0	2	10	2 .24	31	5	11	7	0	.8	65	11	14	0	0		99	17	16	4	3	.2
17	0	3	0	2 .88	32	5	15	2	1	.6	66	11	17	7	0	.8	100	18	0	0	0	
18	0	3	2	3 .52	33	5	18	9	2	.4	67	12	1	2	1	.6	200	36	0	0	0	
19	0	3	5	0 .16	34	6	2	4	3	.2	68	12	4	9	2	.4	300	54	0	0	0	

Directions for the Officers.

THE Officer muſt be careful to ſurvey the Paper-Makers in the Town where he reſides at leaſt *once a Day*, and in his Ride, as often as is conſiſtent with the Nature of his Buſineſs, and the Security of the other Branches of the Revenue he has the Care of. How Paper Makers are to be ſurveyed.

The Officer, upon each Survey, muſt enter into the proper Column the Condition of the MILL: *viz.* Whether at *work*, or *ſilent*; and likewiſe the *ſeveral Sorts* of Paper, which is going forwards, in the proper *Fat Column*, and likewiſe the Condition of the *Dry-Preſs*; and, from Time to Time, he muſt enter the *Number* of Reams therein in *one* Total, though they be of *different Kinds* of Paper; and, as ſoon as *any Part* thereof is *finiſhed*, he muſt make a Charge thereon, entering the ſame in the *proper Column* againſt the *Day* of the *Month* on which it was charged; and, at the ſame Time, he ſhould *examine* ſame of the *Reams* and *Bundles* of *each* Sort, to diſcover whether he is not impoſed upon in the *Tale* of Quires or Sheets. Muſt enter the Condition of the Mill.

Upon *each* Survey the Officer makes, he muſt go through the ſeveral entered *Drying-Rooms*, and *other Places* of the Mill, *Sorting-houſes*, and *Ware-houſes*, and compare the *Bulk* of the *Piles* with what they were upon his former Survey; and he muſt make any other Obſervations from the folding, or by ſome other Mark or Writing upon the Outſide of the *Bundles* or *Reams*, (if the Paper-Makers will permit it) as may enable him to diſcover any foul Practice, diſtinguiſhing the Paper, which has been charged, from what has not been charged. Muſt go through the Drying-Rooms, &c.

Diſcoveries have frequently been made, that ſome Paper-Makers have made *ordinary* Paper *for Printing* in a *Demy* or a *Crown* Mould, and call it *Whited-brown*, and unſkilful Officers have charged it as ſuch, when, in fact, it ought to have been charged *ad Valorem:* For the preventing which the Officer muſt obſerve, that *Whited-brown* Paper is never *ſized*, but all *ordinary* Paper made for *Printing* is ſized much or little, to make is bear the Ink. Such Paper-Makers have ſometimes given to *ordinary Whited-brown* other Names, or perhaps cut them, and made what they call white-*Pound*, or white *Half-Pound* of them, in order to be be charged *ad Valorem*. They have likewiſe cut *ſmall ordinary Brown*, and called it *brown Pound*, or *Half-Pound*; nay, ſometimes *Two-Pound*, in order to its being charged *ad Valorem:* But, to prevent ſuch vile Practices, the Officers muſt be careful to obſerve, that *ſmall ordinary Brown* (as well as *brown large Cap*) is made of *old Ropes*, or *Cordage*, and is a *ſtrong* Paper; whereas *Pound*, *Half-Pound*, or *Two-Pound* Paper, is made of Part *Cordage* and Part *Woollen Rags*, or ſuch other Offal as happens amongſt the Rags, and is generally *thinner*, and more *uneven*, and always more *weak* and *rotten*, than *ſmall Ordinary Brown*, or *brown Large Cap*. And for the more effectual Diſcovery of ſuch Impoſition, as well as Muſt guard againſt Frauds.

Frauds

Frauds in valuing of *unrated* Paper, the Officer muſt requeſt the Maker, or Owner, to give him Leave to take (for a *Sample)* a *Sheet* or *half Sheet* of each Sort of Paper he charges, (which no fair Dealer will refuſe) and write upon it the *Maker's Name*, when charged, the Quantity, the Quality, and the Value (if it *be unrated)* and he muſt carry the ſame to the Sitting to be viewed and examined by the *Collector* and *Superviſor*, and compared with the Samples of Paper charged at *other* Mills.

Muſt keep a Specimen-Paper.

The Officer is to keep a Specimen-paper IN each Paper-Maker's finiſhing Room, and every Survey muſt make a proper Entry thereon.

Muſt be careful they make Entries.

The Officer is to ſee that every Paper-Maker makes ſuch an *Entry* of the Places of *Making*, *Drying*, &c. *as the Law requires*, which muſt be kept on a File by the Office-keeper, and copied by the Officer into his *general Entry-Book*. N. B. The Officer muſt obſerve, and punctually comply with ſuch other Injunctions or Reſtrictions as are contained in the *Exciſe*, *Malt*, or *other* Inſtructions, ſo far as the ſame may be applicable to this Duty, and as if the ſame were here at large repeated.

CHAP. XV.

Concerning the Duty *and* Buſineſs *of thoſe Officers of Exciſe, who ſurvey* Hops, *ſo as to prevent the* Planters *from* evading *the Duty, or* defrauding *the Revenue.*

THE Officer muſt enter, in the Beginning of his Book and Journal, an exact Scheme of his Diviſion, and at the End of the Journal muſt be entered all the Planters Names, and Places of Abode, in the order they are to be ſurveyed; and, as ſoon as each Planter has made his Entry, the Officer is frequently to ſurvey his Hop Ground, till he begins to pick; and alſo, during the Seaſon, if it prevents not more neceſſary Buſineſs. The Officer, at the End of the Seaſon, ſhould alſo ſee the Grounds, and be ſatisfied that the Picking is over, entering, at all ſuch Times, in the proper Columns of the Ledger, in what Condition he finds the Grounds, whether picking, ſilent, or all picked, *&c.*

After Entry, the Officer muſt ſurvey.

Muſt copy all Entries.

The Officer muſt copy all Entries of the Hop-Planters into a Book kept at the Exciſe-Office for that Purpoſe, and atteſted by the Office-keeper, within five Days after the Entries are ſent or given in, on pain of forfeiting the Sum of 40 *s.* for every Neglect: And the Office-keeper muſt be informed, that, as ſoon as he receives any Entry, he muſt write upon it the Time he receives it, and then put it upon a general File; and to this File all the Officers and

and their Aſſiſtants, muſt have frequent Reſort to take from thence the Entries that belong to each of their Diviſions, and to copy the ſame as before directed, and to enter the Particulars, in a Scheme for that Purpoſe, againſt each Planter's Name, at the Head of the Page in the Ledger, and then the Entries muſt be put upon ſeparate Files belonging to each Diviſion and Aſſiſtant, writing upon each Entry, as they file them, the Number progreſſively to anſwer the Index of the Entry-Book; and, at the ſame Time, to enter in the ſaid Index the Planter's Name, Date of his Entry, Time of its being received at the Office, the progreſſive Number of the Entry, Page where, and Time when copied, and the two initial Letters of his Name that copies it. The Entries, that are delivered to the Officers, muſt be managed after the ſame Manner. THE Officer is to obſerve, that he is to ſurvey every Planter once a Day, from the Time of Entry until they begin to pick; after which he muſt ſurvey them, when Notice for bagging, caſking, or weighing is depending, twice a Day, or oftener, until they have finiſhed bagging, caſking, and weighing, if the Buſineſs of his Diviſion and the other Branches of the Revenue under his Care will permit; but, if the Officer's Ride is ſo large that he cannot ſurvey the Planters as aforeſaid, he muſt not fail to ſurvey them as cloſe as poſſibly he can, having a due Regard to where moſt Buſineſs is going forwards. If an Officer has but one or two Aſſiſtants, the Superviſor is to ſee that ſuch Officer once a Week changes Books with the Aſſiſtants, and ſurveys their Diviſions, provided thoſe Aſſiſtants have been inſtructed in the Exciſe, and are capable of performing the Officer's Buſineſs in his Abſence; and the Officer muſt alſo frequently inſpect the Books of his Aſſiſtants, and inform them where he finds them deficient; and, where the Revenue ſeems to be moſt in Danger, he muſt, as often as he can, make Surveys there. THE Officer muſt acquaint all his *Planters*, or *Owners* of Hops, that the Law obliges *each of them* to give or ſend Notice, *in Writing* under their Hands, to the *next* Exciſe-Office, *or* to the proper Officer of the Diviſion, of the *Day*, and preciſe *Hour* of ſuch a Day in which they intend to *begin* to bag, caſk, or weigh *any Part* of their Hops; and ſuch Notice for bagging, caſking, or weighing, in the *firſt Week* of bagging, *&c.* or weighing, muſt be given or ſent at *leaſt twenty-four Hours* before-hand, and *after* the firſt Week, *forty eight Hours* before ſuch bagging and weighing ſhall begin: And if, after ſuch Notice given, they do not proceed to bag, *&c.* and weigh, purſuant to their reſpective Notice, they muſt, before they ſhall at any other Time begin to bag, *&c.* or weigh any Part or Parts thereof, give or ſend a *freſh Notice*, under the Penalty of *fifty Pounds:* and if any Owner, or Planter, ſhall neglect or refuſe to comply as aforeſaid, in giving or ſending Notice, the Officer muſt acquaint the *Collector* or *Superviſor* with it, as ſoon as he has an Opportunity. The Officer, when he has ſuch Notice given him, when he is upon his Survey, muſt enter

How oft he muſt ſurvey the Planters.

When to change Books with the *Aſſiſtants*.

Muſt acquaint the Planters that they give a written Notice to weigh.

Within what Time.

If delay'd, muſt give a freſh Notice, or forfeit 50 *l.*

ter

ter it in his *Ledger*, and remark it at the End of the ſaid Book.

Of Planters who dry for others, and of Owners that have no Ouſt.

N. B. If any Planter dries for other Perſons, ſuch Planter, when he gives notice to bag or weigh any Hops that are not his own, muſt be required to mention in ſuch Notice the *Owner*'s *Name*; or if the *Owner*, who has no Ouſt of his own, gives the Notice himſelf, he is to mention in it *at whoſe Ouſt* the ſame are to be bagged or weighed. THE Officer muſt take all Opportunities of Enquiring, where the Journal is kept, whether any Notice for bagging, caſking, or weighing has been left; and, when he finds any that relates to his Diviſion, he muſt immediately enter properly the Date of it, and the Time he found it, in his Ledger, at the End of his laſt Survey, the Columns for Notices being to be left open for that Purpoſe, until he makes the next Survey; at which Time he muſt not fail to daſh or dot through thoſe that have not been filled with a Notice ſince the former Survey; and if Notice of bagging, caſking, or weighing, is at any Time given, and the bagging, caſking, and weighing afterwards deferred, the Officer muſt inſiſt on freſh Notice, and enter the ſame in his Ledger, and cancel the former Notice.

Muſt enquire after Notices for Bagging, &c.

Muſt be careful the Scales and Weights are juſt.

The Officer, when he weighs, muſt take great Care that the Scales are truly ballanced, and that the Weights are juſt; and he muſt frequently change the Ends, and put the Weights ſometimes in one Scale, and ſometimes into the other Scale, that he is not impoſed upon by a falſe Beam; and he muſt not, on any Pretence, uſe Stones, &c. for Weights, becauſe the Law obliges all Planters to provide juſt Weights and Scales †; and when the Officer is obliged to weigh by Stilliards, he muſt try them by ſome known Weight, if he can eaſily procure one, or not fail to uſe ſuch other Cautions as are neceſſary to prevent an Impoſition, and always be very punctual in weighing each Bag or Caſk; becauſe no Cuſtom of a Country is to be any Plea for allowing a Pound or two at each Draught. AFTER any Pocket or Bag is weighed, and the *Tare* deducted, *which is one Pound in every Ten Pounds*; (and, for the more ready deducting it, I have furniſhed a Table at the Cloſe of this Chapter;) he muſt enter the *Number* of the *Pocket* or *Bag*, and alſo its *groſs* and *net* Weights in his *Ledger*, and then he muſt mark the *Number*, *net Weight*, and *Year of our Lord* upon *each* Pocket or Bag, and with his Bruſh he muſt make ſome black Strokes *croſs the Sewing* at the Top of the Bag, and at *the Bottom*, (if ſewed there;) ſo that if the Bag ſhould be opened, and more Hops put into it, the Fraud may appear by the Separation of thoſe black Strokes; and, before the Officer leaves the Place of Weighing, he muſt not fail to *add up* the Pockets or Bags, and the *groſs* and *net* Weight, in his Book; transferring the *Total* of the Pockets or Bags, and the *net* Weight into the *Charge-Column*. WHEN Hops are intended to be *caſked*, the *Caſks* muſt be carefully weighed, and the *Tare* marked fairly thereon with Ink; and, when each Caſk of Hops is weighed, the *Tare* of the Caſk muſt be *deducted*, and the

How the Bags are to be entered, numbered, and marked.

When Hops are to be caſked.

† See *Page* 207.

the *net* Weight of the Hops, together with the *Number* of the Caſks, muſt be marked *(progreſſively)* thereon, juſt in the ſame manner as is done by *Pockets* and *Bags*. THE Officer, at thoſe Planters who make uſe of their own Ouſt, muſt leave a Minute-Paper in the Ouſt-Houſe of all ſuch Planters, on which he muſt enter the Time of his Survey, *&c.* and, before the Officer leaves his Diviſion, he muſt deliver to thoſe Planters whoſe Hops are all weighed off, or their Servant, under his Hand in Writing, the whole *net* Weight of Hops, and the Sum of Money he is charged with, alſo the Place where, and Time when the ſaid Duty is to be paid, that no Perſon concerned may have any Pretence to plead he is ignorant thereof. THE Officer ſhould have Recourſe to the Books for the *laſt Year*, and take from thence the *Name*, *Place of Abode*, *Quantities of Ground* and *Hops*, of every *By*-Planter, and enter theſe Particulars in his Book, together with their *progreſſive Numbers*; and this is only deſigned as a Direction for the *preſent* Year: And when he makes any Diſcovery upon them, by their Entries or otherwiſe, for the *preſent* Year, he muſt enter and ſurvey them *cautionally*. THE Officer muſt enter *the Names* of the *By*-Planters, who pay their Duty to the Officer, and likewiſe the *Names* of thoſe, who have been ſurveyed as *By*-Planters, but will not pay their Duty to the Officer; and the Officer, upon receiving the Duty from any *By*-Planter, muſt immediately give him *an Acquittance* for the ſame, which muſt expreſs the *net Weight* of Hops, the *Sum of Money*, and *Time* when charged therewith; and, at the *next* Sitting, the Officer muſt pay *all* the Money that he has received for *By*-Hops to the *Collector*, and enter the Particulars in a Book (he is to keep for that Purpoſe,) and ſign his Name thereto; but he muſt not, at his Peril, offer to enter any Perſon in the *Scheme* for *By*-Hops, who enters an Ouſt of his own; nor any one whoſe Duty amounts to *twenty Shillings*; nor muſt he preſume, on any Pretence whatſoever, to receive the Duty, if the whole Charge be not *leſs* than *twenty Shillings*. IN this, as in all other Branches of the Exciſe, the Officer muſt never enter any *feigned Survey*, or *falſe Minute*, nor muſt he *ſcratch* or *alter* any *Word* or *Figure* in his *Ledger*, *Minute*, *Papers*, or *Journal*, on pain of the utmoſt Diſpleaſure of the Board; but, if he ſhall happen to make *any Miſtake*, he muſt only draw a *ſmall Line* through it with his Pen, that it may remain legible, and clear the Miſtake, by writing a *Memorandum* againſt it. WHERE the Officer is employed in ſuch a Diviſion as is only for the Hop-Seaſon, he muſt haſten the Planters to weigh off as ſoon as conveniently they can; and, as ſoon as the moſt Conſiderable have weighed off, he muſt acquaint the Superviſor therewith; and if the Superviſor thinks one of the neighbouring Officers may look after thoſe Planters that have not finiſhed, and ſhall give Directions accordingly, the Officer is forthwith to deliver his Books and Papers, and what Money has been paid him for *By*-Hops, ſince the former Sitting, to the ſucceeding

Muſt have a Minute Paper in the Ouſt-Houſe.

Muſt conſult the Books of the laſt Year.

Of *By*-Planters.

Muſt give a Receipt, and pay for *By*-Hops, and when.

Muſt make no feigned Surveys, *&c.*

His Duty when he is imployed for the Hop-Seaſon only.

ceeding Officer, and take his Receipt for the ſame; and, upon his repairing to the Collector, he will pay him his Salary to that very Day incluſive, upon which he delivered his Books to the ſucceeding Officer. THE Officer muſt always carry his *Commiſſion* with him when upon his Survey, and muſt readily ſhew it to thoſe concerned, who ſhall demand a Sight thereof; and he muſt take care his Behaviour be *civil*, and that he avoids giving any juſt Occaſion of Complaint. THE Officer muſt obſerve, that thoſe Hops which belong to Planters, who have no Ouſt of their own, muſt be weighed *at the Place where they are dried and bagged*, but *the Draughts* muſt be entered in the *Page* belonging to *the Perſon to whom they are charged.*

When to carry his Commiſſion.

A neceſſary Obſervation.

The USE *of the following* TABLES.

C. Qr. lb.

Queſtion. In 18 : 3 : 20 of *Bag-Hops*, I demand
Firſt, How many Pounds-*groſs*?
Secondly, How many Pounds-*net*? And,
Thirdly, How much the *Exciſe* amounts to at 1 *d. per Pound*?

Firſt: For the *Pounds-groſs* by TABLE I.

C. Qr. lb.
18 : 0 : 0 is 2016
0 : 3 : 20 is 0104

Anſwer 2120 Pounds-*groſs*.

Secondly: For the *Pounds-net* by TABLE I.

2016 lb. *groſs* is 1814.4
104 ——— is 93.6

Groſs lb. 2120 *Anſwer* 1908. Pounds-*net*.

Thirdly: For the *Amount* of the *Exciſe* by TABLE II.

		l.	*s.*	*d.*
1000 lb.	is	— 4 :	3 :	4
900	is	— 3 :	15 :	0
8	is	— 0 :	0 :	8
1908 lb.		*l.* 7 :	19 :	0 is the *Amount* of the *Exciſe*.

☞ When (in *either* of the *Tables*) you cannot find the Number you want at *once*, you muſt take it out at ſeveral Times, as in the above Examples

N. B. If you want to turn *Pounds-net* into *Pound-groſs*, or into *Hundreds*, *Quarters*, and *Pounds*; find the *Pounds-net* (in *Table* I.) and, in *the next* Column to the *Left Hand*, you have the *Pounds-groſs*; and *next* to that the *Hundreds*, *Quarters*, and *Pounds*, which are equal to it.

TABLE I.

An *Eaſy* and *Uſeful* Table for reducing *Hundreds*, *Quarters*, and *Pounds*, into Pounds *Groſs*; and Pounds *Groſs* into Pounds *Net*; the *Allowance* for the *Bag* or *Tare*, which is 1 lb. in 10 lb. being *deducted*.

Hundr.	Quart.	Pounds	Groſs Weight in Pds.	Net Weight in Pounds and 10ths.		Hundr.	Quart.	Pounds	Groſs Weight in Pds.	Net Weight in Pounds and 10ths.		Hundr.	Quart.	Pounds	Groſs Weight in Pds.	Net Weight in Pounds and 10ths.	
			lb.	lb.	10ths.				lb.	lb.	10ths.				lb.	lb.	10ths.
0	0	0	1	0	9	0	1	20	48	43	2	0	3	11	95	85	5
0	0	0	2	1	8	0	1	21	49	44	1	0	3	12	96	86	4
0	0	0	3	2	7	0	1	22	50	45	0	0	3	13	97	87	3
0	0	0	4	3	6	0	1	23	51	45	9	0	3	14	98	88	2
0	0	0	5	4	5	0	1	24	52	46	8	0	3	15	99	89	1
0	0	0	6	5	4	0	1	25	53	47	7	0	3	16	100	90	0
0	0	0	7	6	3	0	1	26	54	48	6	0	3	17	101	90	9
0	0	0	8	7	2	0	1	27	55	49	5	0	3	18	102	91	8
0	0	0	9	8	1	0	2	0	56	50	4	0	3	19	103	92	7
0	0	0	10	9	0	0	2	1	57	51	3	0	3	20	104	93	6
0	0	0	11	9	9	0	2	2	58	52	2	0	3	21	105	94	5
0	0	0	12	10	8	0	2	3	59	53	1	0	3	22	106	95	4
0	0	0	13	11	7	0	2	4	60	54	0	0	3	23	107	96	3
0	0	0	14	12	6	0	2	5	61	54	9	0	3	24	108	97	2
0	0	0	15	13	5	0	2	6	62	55	8	0	3	25	109	98	1
0	0	0	16	14	4	0	2	7	63	56	7	0	3	26	110	99	0
0	0	0	17	15	3	0	2	8	64	57	6	0	3	27	111	99	9
0	0	0	18	16	2	0	2	9	65	58	5	1	0	0	112	100	8
0	0	0	19	17	1	0	2	10	66	59	4	2	0	0	224	201	6
0	0	0	20	18	0	0	2	11	67	60	3	3	0	0	336	302	4
0	0	0	21	18	9	0	2	12	68	61	2	4	0	0	448	403	2
0	0	0	22	19	8	0	2	13	69	62	1	5	0	0	560	504	0
0	0	0	23	20	7	0	2	14	70	63	0	6	0	0	672	604	8
0	0	0	24	21	6	0	2	15	71	63	9	7	0	0	784	705	6
0	0	0	25	22	5	0	2	16	72	64	8	8	0	0	896	806	4
0	0	0	26	23	4	0	2	17	73	65	7	9	0	0	1008	907	2
0	0	0	27	24	3	0	2	18	74	66	6	10	0	0	1120	1008	0
0	1	0	28	25	2	0	2	19	75	67	5	11	0	0	1232	1108	8
0	1	1	29	26	1	0	2	20	76	68	4	12	0	0	1344	1209	6
0	1	2	30	27	0	0	2	21	77	69	3	13	0	0	1456	1310	4
0	1	3	31	27	9	0	2	22	78	70	2	14	0	0	1568	1411	2
0	1	4	32	28	8	0	2	23	79	71	1	15	0	0	1680	1512	0
0	1	5	33	29	7	0	2	24	80	72	0	16	0	0	1792	1612	8
0	1	6	34	30	6	0	2	25	81	72	9	17	0	0	1904	1713	6
0	1	7	35	31	5	0	2	26	82	73	8	18	0	0	2016	1814	4
0	1	8	36	32	4	0	2	27	83	74	7	19	0	0	2128	1915	2
0	1	9	37	33	3	0	3	0	84	75	6	20	0	0	2240	2016	0
0	1	10	38	34	2	0	3	1	85	76	5	30	0	0	3360	3024	0
0	1	11	39	35	1	0	3	2	86	77	4	40	0	0	4480	4032	0
0	1	12	40	36	0	0	3	3	87	78	3	50	0	0	5600	5040	0
0	1	13	41	36	9	0	3	4	88	79	2	60	0	0	6720	6048	0
0	1	14	42	37	8	0	3	5	89	80	1	70	0	0	7840	7056	0
0	1	15	43	38	7	0	3	6	90	81	0	80	0	0	8960	8064	0
0	1	16	44	39	6	0	3	7	91	81	9	90	0	0	10080	9072	0
0	1	17	45	40	5	0	3	8	92	82	8	100	0	0	11200	10080	0
0	1	18	46	41	4	0	3	9	93	83	7	200	0	0	22400	20160	0
0	1	19	47	42	3	0	3	10	94	84	6						

TABLE II.

A *New* Cash-Table for the *Duty* on HOPS, at a Penny *per* Pound.

The *Weight* in Pds being	The *Duty* is l.	s.	d.	The *Weight* in Pds being	The *Duty* is l.	s.	d.	The *Weight* in Pds being	The *Duty* is l.	s.	d.
1	0	0	1	120	0	10	0	410	1	14	2
2	0	0	2	130	0	10	10	420	1	15	0
3	0	0	3	140	0	11	8	430	1	15	10
4	0	0	4	150	0	12	6	440	1	16	8
5	0	0	5	160	0	13	4	450	1	17	6
6	0	0	6	170	0	14	2	460	1	18	4
7	0	0	7	180	0	15	0	470	1	19	2
8	0	0	8	190	0	15	10	480	2	0	0
9	0	0	9	200	0	16	8	490	2	0	10
10	0	0	10	210	0	17	6	500	2	1	8
11	0	0	11	220	0	18	4	600	2	10	0
12	0	1	0	230	0	19	2	700	2	18	4
13	0	1	1	240	1	0	0	800	3	6	8
14	0	1	2	250	1	0	10	900	3	15	0
15	0	1	3	260	1	1	8	1000	4	3	4
16	0	1	4	270	1	2	6	2000	8	6	8
17	0	1	5	280	1	3	4	3000	12	10	0
18	0	1	6	290	1	4	2	4000	16	13	4
19	0	1	7	300	1	5	0	5000	20	16	8
20	0	1	8	310	1	5	10	10000	41	13	4
30	0	2	6	320	1	6	8	20000	83	6	8
40	0	3	4	330	1	7	6	30000	125	0	0
50	0	4	2	340	1	8	4	40000	166	13	4
60	0	5	0	350	1	9	2	50000	208	6	8
70	0	5	10	360	1	10	0	60000	250	0	0
80	0	6	8	370	1	10	10	70000	291	13	4
90	0	7	6	380	1	11	8	80000	333	6	8
100	0	8	4	390	1	12	6	90000	375	0	0
110	0	9	2	400	1	13	4	100000	416	13	4

CHAP. XVI.

Concerning the Duty *and* Buſineſs *of thoſe Officers of Exciſe, who ſurvey* Dealers *in* Coffee, Tea, *and* Chocolate, *ſo as to prevent them from* Evading *the Duty, and* Defrauding *the Revenue.*

Caniſters, &c. muſt be numbered, &c.

THE Officer is to number all the large Caniſters, Bags, Boxes, Tubs, and aſſign a Column in his Book for each, and enter at the Top the Numbers, Depths, and the Contents in Pounds net; he muſt enter the Diameters of the round Caniſters, Bags, Tubs, and Caſks, and alſo the Sides of the ſquare or oblong Caniſters and Cheſts; the Number of other Caniſters of ſmaller Size, *i. e.* Pounds or half Pounds, *&c.* may be ſtocked in Columns, titled proper for their Contents, and the Quantity in them, *per* Computation, may be entered in another Column, as will be taught you when you are under Inſtruction.

Muſt have the Stock weighed, if he ſuſpects a Fraud.

The Officer, when he finds any of the before mentioned Veſſels broke open, and any Part taken out, he muſt make the Surface of the Remainder even, and then take the Inches the Veſſels want of being full, and inſert them in his Book, by which he will be able afterwards to judge if any fraudulent Increaſe has been made; and if, from the Gauges he has taken, he has Reaſon to ſuſpect a Fraud at any Time, he is fully to ſatisfy himſelf by having the Stock weighed. (See *Page* 207.) Every Keeper of Coffee and Chocolate-houſes, Maker of Chocolate, or Seller of Coffee, Tea, or Chocolate, are, every Night, to enter into Books, for that Purpoſe, the Totals of all the ſmall Quantities, under ſix Pounds, which have each Day been reſpectively ſold or conſumed. And, where you ſuſpect any Trader does not make true Entries, you are to employ ſome Perſon privately to buy ſo much *Tea*, &c. as will exceed the daily Quantity ſuch Trader generally enters in his Book (the *Tea*, &c. to be brought to the general Office, and entered in a Book kept for that Purpoſe.) They muſt alſo enter, every Night, into other Books, every Parcel of Coffee, Tea, *&c.* that exceeds ſix Pounds Weight, which they reſpectively ſell each Day, and for all ſuch Quantities the proper Officer is to give Permits or Certificates; and, if the ſaid Goods are found carrying without a Permit, they are to be ſeized. When a Permit has been granted for any conſiderable Quantity of *Coffee*, or *Tea*, to any Perſon, and the Officer has Reaſon to ſuſpect, he is immediately to repair to ſuch Perſons, and take Stock there, in order to diſcover whether there be *a ſuitable* Decreaſe for the ſame. Or when he finds ſuch ſuſpected Permit taken out for *Tea*, &c. and apprehends the Goods will not be ſent away with the Permit, if he by watching can prove the Goods are not

The Sellers to enter all leſs than 6 lb. and all Parcels that exceed 6 lb. in ſeparate Books; and muſt have Permits for the ſame.

not ſent out, nor Permit returned, he has detected ſuch a Trader in a Penalty for *treble the Value* for ſuch *Tea*, &c. and beſides, that Dealer in *Tea*, &c. is under another Penalty for *falſe Entry* in his Book. The Officer is to ſtock at uncertain Times, but he muſt do it as often as other Buſineſs will permit, at which Time he muſt look thro' all the entered Rooms, and ſuch other Places as may be convenient for carrying on a Fraud; and, if he receives any Information, or has any Cauſe to ſuſpect that any Quantity of Coffee, Tea, *&c.* ſhall be hid fraudulently, or concealed in any other Place belonging to any Perſon whatſoever, he muſt make Oath thereof before one or more Juſtices of the Peace, according to the Act of Parliament for obtaining a Warrant to ſearch and ſeize ſuch Coffee, Tea, *&c.* as he finds hid or concealed. And the Officer, when he takes an Account of the Stock, muſt, from the Trader's Books before-mentioned, take an Account of what Goods have been ſent out, and enter the ſame in Columns for that Purpoſe in his own Book; and this he muſt compare with his Stock, that he may be able to diſcover whether the Quantity ſent out be anſwerable to the Decreaſe in Stock. And, as often as he does ſtock and examine the Dealer's Books, he muſt enter in them, inſtead of a Specimen-paper, the Time of his Survey, and the two firſt Letters of his Chriſtian and Sir-name, cloſe under the Date of the Dealer's laſt Entry: and the Officer, at the Cloſe of every 2d, 4th, 6th, and 9th Rounds muſt take up ſuch Books from the Dealers, after either they, or their Servants who kept them, have made Oath, or Affirmation before the Collector or Superviſor, to the Truth of the Entry contained therein; and at the ſame Time they muſt have new Books delivered to them, and the old ones muſt be returned to the Office. The Officer, at the Cloſing of every one of his Books, muſt be careful that, to the Quantities each Trader reſpectively had in Stock at the Beginning of ſuch Books, he adds what they have reſpectively received in ſince, and from thoſe Totals he muſt deduct what thoſe Traders have ſent out, and the Remainders are (or ought to be) the true Quantities in Stock, which Quantities he muſt enter againſt the transferred Stocks in the new Books.

Muſt ſtock at uncertain Times.

Of making Information.

Muſt compare the Stock.

Muſt ſign to his Stocking of Dealers.

Dealers to be ſworn to the Truth of their Entries.

Of cloſing the Books.

The Officer is to obſerve that no Coffee, Tea, *&c.* muſt be expoſed to Sale but in ſuch Places as are lawfully entered, nor brought into any ſuch Warehouſe, *&c.* without his firſt having Notice given him thereof, and a Certificate being produced that the Duty is paid, if the Quantity exceeds *ſix Pounds*; and he muſt immediately weigh ſuch Goods, and deduct the Tare, and enter the net Weight in the Book, and the Permits or Certificates muſt be carefully kept on a File and ſent to the Board, with the Books to which they belong. And, when the Officer finds an Increaſe of any Quantity that is leſs than ſix Pounds, he is to inſiſt on Satisfaction that the Duty has been paid; and, if he has good Reaſon to believe that

Muſt not be expoſed to Sale, but in entered Places, nor brought there without a Permit, *&c.*

that it has not been paid, he may ſeize it, the Proof thereof being to lie upon the Perſon that owns or claims the ſame, or upon the Perſon who had the ſame found upon him.

And, as ſoon as poſſible after ſuch Entries are made, the Officer muſt repair to (and require of) the Perſon, or his Servant who made the Entry, to ſhew every Warehouſe, or other Place expreſſed in ſuch Entry; and where he finds *Tea*, &c. in any unentered Place, he muſt ſeize the ſame; which, with the *Caſk* or *Package*, is by Law forfeited, and a Penalty of 200 *l.* for *Tea*, &c. When the Officer makes any Seizure of *Tea*, &c. he is to bring it as ſoon as poſſible to the Warehouſe at the general Exciſe-Office, without any Embezzlement. *N. B.* That every Perſon whatſoever, keeping a Public-Houſe, Shop, Cellar, or Ware-houſe, for ſelling of Brandy, Arrack, Rum, or Spirits, or ſtrong Waters, and having in their Cuſtody any *Coffee*, *Tea*, &c, exceeding 6 lb. are to be deemed Dealers in the ſaid Commodities.

Informations on a Seizure being always laid in the Officer's Name who makes ſuch Seizure; when therefore he is neceſſitated to make a Seizure alone, and can have no Witneſs then to prove the Seizure, he muſt afterwards reſeize, or make a ſecond Seizure of the ſame Goods, in the Preſence of a ſufficient Witneſs. In all Seizures, except where *Tea*, &c. is ſeized whilſt carrying from Place to Place without a Permit, *&c.* it will be neceſſary to prove that the *Tea*, &c. ſeized, belongs to a Seller or Dealer therein. See *Page* 226.

☞ The Officer is to uſe his beſt Endeavours to diſcover any *counterfeit* or *dyed Tea*, ſeeing about 29 Years ſince, *viz.* 1725, it was ordained that *No Dealer in Tea, or Manufacturer or Dyer thereof ſhould counterfeit or adulterate Tea with* Terra Japonica, *or any Drugs, nor ſhould mix with Tea any Leaves, other than Leaves of Tea, on Pain of forfeiting the Tea and alſo the Sum of* 100 *l.*

And about 23 Years ſince, viz. 1731, it was further ordained, that *If any Dealer in Tea ſhould dye or manufacture any Sloe-Leaves, Liquorice-Leaves, or the Leaves of Tea that have been uſed, or the Leaves of any other Plant in Imitation of Tea, or ſhould mix, colour, or dye ſuch Leaves or Tea with* Terra Japonica, *Sugar, Melaſſes, Clay, Logwood or other Ingredients, or ſhould ſell or expoſe to Sale, or ſhould have in his Cuſtody, any ſuch dyed or manufactured Leaves in Imitation of Tea, or any ſuch coloured or dried Leaves or Tea mixed with other Ingredients, ſuch Perſons ſhould for every Pound of ſuch Leaves or mixed Tea forfeit* 10 *l.*

How Chocolate-makers are to be ſurveyed.

The Officer muſt ſurvey *twice a Day, or oftener*, all Chocolate-makers when they are at Work, and enter in his Book, at each Survey, the Condition of the Houſe, *i. e.* if there be no Work in Hand, *ſilent*; but, if they are at Work, he muſt enter the Number of Stones or Perſons at Work; and he is to obſerve, that from each Stone he may reaſonably expect *twelve or fourteen Pounds* of Chocolate a Day; and the Officer

must enter the Number of Pounds which have been filled into the Pans or Moulds, ſince he laſt ſurveyed, in a Column titled for that Purpoſe; and, if he takes the Account right, thoſe Columns will contain the whole Number of Pounds to be charged upon the Maker. The Officer is to be exceeding careful to take an Account of all the Cocoa-nuts brought in, and from whom; he muſt likewiſe take an Account of the Decreaſe in the Maker's own Stock of Nuts; and for this End it will be neceſſary to take the Stock every Day when they are at Work, and enter the Decreaſe in a Column for that Purpoſe, and that he may compare the whole Decreaſe with the Number of Pounds of Chocolate made; and, if he does not find eighty Pounds or upwards of Chocolate from one Hundred and Twelve Pounds of Nut, he has great Reaſon to ſuſpect the Maker does not work fair. Laſtly, the Officer is to obſerve that all Chocolate-makers are, every ſix Weeks, to make an Entry in Writing, upon Oath, of the Weight of all the Chocolate they have made in ſuch ſix Weeks; and they muſt produce all the Chocolate contained (or which ought to be contained) in ſuch Entries, to the reſpective Officers, who are appointed to receive the ſaid Entries; which Chocolate muſt be tied up, and a Stamp or a Mark affixed thereon by the Surveyor; or, if it be done by the Officer, it muſt be done when the Collector or Surveyor are preſent.

Of the Cocoa-Nut.

Chocolate-makers to be ſworn every ſix Weeks; and the Goods ſtamped.

CHAP. XVII.

Shewing the Duty *and* Buſineſs *of thoſe Officers of Exciſe, who ſurvey Printers of* Silk, Linen, *&c. ſo as to prevent them from* evading *the Duty, and* defrauding *the Revenue.*

THE Officer employed in this Branch of the Revenue muſt ſurvey the *Printers or others*, who are chargeable with theſe Duties, as often as his *other Buſineſs* will admit of it; and, every Survey he makes, he muſt go through all the *entered Rooms*, and into ſuch other Places which are not entered, that he apprehends may be convenient for *laying*, *preparing*, *working*, *drying*, or *keeping* any of the ſaid Commodities.

Printers, when to be ſurveyed.

Officers muſt go through all the entered Rooms, *&c.*

The Officer muſt be careful to take an Account of all Linens, *&c.* that are brought in to be printed, *&c.* and, if poſſible, he muſt meaſure them alſo before they are printed, and he muſt write upon each Piece (at a Corner, or ſome other convenient Part, where it will be viſible after Printing) the Number thereof, beginning with Numb. 1. upon the Commencement of every Book, and ſo muſt proceed progreſſively; likewiſe the Number

And take an Account of all Linens, *&c.*

of the Round; which Numbers he muſt enter, with their reſpective Length and Breadth, in the proper Columns in his Book; and, when he finds any Piece is printed, muſt meaſure and ſtamp the ſame, and inſert its Dimenſions in the proper Columns, comparing them with his former Account, and then mark off that former Account, with the Day of the Month each Piece was charged by him.

Muſt inſpect the Tables, &c. and be careful of his Stamp.

The Officer muſt carefully inſpect the Tables, &c. when he finds the Printer at Work; and if he finds a Piece a printing, which has not been numbered and meaſured before, he muſt number it as *white Goods*, that, when it is finiſhed, it may be meaſured and charged; and at the End of his Book he muſt be ſure to ſet forth the Charges made each Day on the reſpective Printers.

He muſt be very careful of his Stamp; and, when he does not carry it with him, he muſt keep it ſo locked up, that nobody but himſelf may come to it.

Of the Specimen Paper.

The Officer muſt keep at each Printer's a Specimen Paper, upon which he muſt enter the Time of his Survey; the Condition of the Houſe, the Numbers of the *white*, and alſo the Numbers of the printed Goods he has meaſured that Survey; and when he makes a Charge, he muſt remark it at the End of his Book immediately, that it may be poſted into the Journal.

Of Travelling Printers.

The Officer muſt obſerve, that all the travelling or job Printers, who print, &c. at any other Place than that of their uſual Reſidence, or Exerciſe of their Trade, muſt, before they print, &c. any Linen, &c. make an exact, particular Entry of the Goods they intend to print, and pay the Money down for the Duty of the ſame, under a Penalty of 50 *l.* and Forfeiture of the Goods ſo intended to be printed.

Yard for meaſuring to be divided into 100 equal Parts.

Now, in order to render the Meaſuring in theſe Duties as *conciſe* and *practicable* as poſſible, the Officer muſt provide himſelf with a *Rule* exactly a Yard long; which muſt be divided into *ten equal Parts*, and thoſe again divided into *ten other equal Parts*, will make the whole Yard to be equally divided into 100 *equal Parts*; with which Yard he muſt take his *Lengths* and *Breadths*, and enter them in Yards, and Parts of Yards. For Inſtance, if a Piece be 18 Yards and $\frac{1}{2}$ long, and $\frac{3}{4}$ of a Yard *broad*, the Length by the Rule will be 18.5, the Breadth .75, which being *multiplied*, the Length by the Breadth, the Product will be the Content in Yards ſquare, and Parts. But by the *Sliding Rule* it is much readier, for ſetting the *Length* 18.5 on B, to *Unity* on A, againſt the *Breadth* .75 on A, you have 13.875 the *Content* on B.

Of Length and Breadth, an Example.

The Uſe of the Sliding Rule in caſting up the Contents.

The Officer is to obſerve that *all Callicoes* between 31 Inches and a half, and not exceeding 40 Inches and a half *broad*, are to be reckoned as *Yard broad*; but *all other* Callicoes of a greater or leſſer Breadth, and *all Linens* and *Silk-Handkerchiefs*, are to be reckoned and accounted for by the *Yard Square*; and, in *all other Silks*, he is to reckon the *Yard Square*, for *two* Yards, and ſo in Proportion.

CHAP.

CHAP. XVIII.

Concerning Glaſs-makers, *&c. and of the* Duty, *and the* Buſineſs *of thoſe Officers who* ſurvey *them, ſo as to prevent them from* evading *the* Duty, *and* defrauding *the* Revenue.

Of the *Duty* upon GLASS.

The Duty on *imported* Glaſs, *&c.*

IN the Year One Thouſand Seven Hundred and Forty-Five it was ordained, that, after the 25th of *March* 1746, all *Glaſs*, *Bottles*, and *Flaſks*, IMPORTED into *Great-Britain*, ſhould pay the following Duties: *viz.* All *Crown*, *Plate*, and *Flint Glaſs*, 8 *d.* for *every Pound Weight*; all *Green* or *other Glaſs*, 2 *d.* for *every Pound Weight*; all *Bottles* and *Flaſks*, containing *a Quart*, 2 *s. per Dozen*; and all *Bottles* and *Flaſks* containing *more* or *leſs* than a *Quart*, 2 *s.* for *every Dozen Quarts*, be the Quantity of Bottles, containing the ſame, greater or leſſer: To be paid by *the Importer*.

The Duty on *Britiſh*-made Glaſs.

And all Materials, or Metal, or other Preparations whatſoever, which are or ſhall be made uſe of in making of all *Crown*, *Plate*, and *Flint* Glaſs, and *white* Glaſs, and of *common* Bottles, and all other *Green* Glaſs, are to pay the following Duties, *viz.* All the Materials for making Crown, Plate, Flint, and white Glaſs, 9 *s.* 4 *d.* for *every Hundred Weight*: And all the Materials for making *common Bottles* and all other *Green Glaſs*, 2 *s.* 4 *d.* for *every Hundred Weight*, and after theſe Rates for a greater or leſſer Quantity: To be paid by *the Maker*.

Imported Glaſs when forfeited.

And in Caſe any *Glaſs*, *Bottles*, or *Flaſks*, IMPORTED, ſhall be landed or put on Shore, before due Entry and the Duties paid, or ſecured; and a Warrant ſigned by the proper Officer; they ſhall be forfeited, or the Value thereof, one Half to the King, and one Half to ſuch Perſon as ſhall ſeize, inform, or ſue for the ſame in any of the Courts of Record at *Weſtminſter*, or in the Exchequer in *Scotland*, by Action of Debt, Bill, Plaint or Information, wherein no Eſſoin, Protection, or Wager at Law to be allowed. AND theſe Duties upon IMPORTED *Glaſs* are to be raiſed, levied, collected, and paid, in the ſame manner, and by ſuch Ways, Rules, and Means, and under ſuch Penalties and Forfeitures, as the preſent Duties on IMPORTED *Manufactures* of *Glaſs* are by an Act paſſed the 2d of *William* and *Mary*: And theſe Duties on IMPORTED *Glaſs* are to be under the Commiſſioners of the Cuſtoms of *England* and *Scotland* reſpectively.

The Duties how collectable.

The Monies where to be paid.

And all the Money ariſing by theſe Duties (the neceſſary Charges of raiſing and accounting for the ſame excepted) ſhall from Time to Time be paid into His Majeſty's Exchequer at *Weſtminſter*, diſtinctly and apart from all other Branches of the public Revenues. AND for the better aſcertaining and ſecuring

curing the ſeveral Duties upon all Materials uſed in making Glaſs in *England*, *Wales*, or the Town of *Berwick* upon *Tweed*, the Duties are to be under the Management of the Commiſſioners of the Exciſe in *England* for the Time being: And Duties upon all Materials uſed in making Glaſs in *Scotland*, are to be under the Management of the Commiſſioners of the Exciſe in *Scotland*. And all Monies ariſing by the ſaid Duties ſhall be paid into His Majeſty's Exchequer at *Weſtminſter*, diſtinctly and apart from all other Branches of the public Revenue.

The Duties on *Britiſh*-made Glaſs where to be paid.

All Makers of Glaſs, on or before the 25th of *March* 1746, were to make an Entry in Writing at the next Exciſe-Office, of his Name and of all his or her *Furnaces*, *Pots*, *Pot-Chambers*, *Warehouſes*, *Rooms* and *other Places*, for the *making* or *keeping* of *Glaſs*; or of Materials mixt and prepared for Making of Glaſs; and not to uſe any Pot or Pots for preparing or making of Glaſs, without firſt giving Notice to the proper Officer, that he may weigh, gauge, or take an Account of the ſame, on the Penalty of 50 *l.* for every Offence, Half to the King, and Half to the Informer.

Glaſs-makers to make Entry, or forfeit 50 *l.*

Every Glaſs-maker is to give the proper Officer Notice in Writing 12 Hours next before he begins to fill or charge any Pot or Pots, ſetting forth the true Weight of the Metal made uſe of, and the Species of Glaſs ſo to be made, on Penalty of 50 *l.* for every Offence

To give Notice, or forfeit 50 *l.*

But it is provided, that, if an *intended* Filling or Charging is not begun, the Notice given is to be null and void, and a new Notice muſt be given under the like Penalty and Forfeiture, as if no Notice at all had been given.

A freſh Notice, or forfeit 50 *l.*

AND the Officers muſt at all Times, by Day or by Night, be permitted (upon Requeſt) to enter the Workhouſe, Warehouſe, or other Place for making or preparing of Glaſs, belonging to or uſed by any Perſon, who, on or after the 25th of *March* 1746, ſhall be a Maker of any Glaſs whatſoever; and to weigh or otherwiſe take an Account of the juſt Quantity of the Metal and Materials mixt and prepared for the Making of Glaſs, before the ſame is put into the Pot or Pots; and to examine, gauge, or otherwiſe take an Account of the juſt Quantity of the Metal and Materials mixed and prepared for the Making of Glaſs, after the ſame have been put into ſuch Pot or Pots, and ſhall thereof reſpectively make a Return or Report in Writing, to the reſpective Commiſſioners of *Great-Britain*, or ſuch as they ſhall reſpectively appoint to receive the ſame; leaving a true Copy (if demanded) in Writing under his Hand, with or for ſuch Makers of Glaſs reſpectively, and ſuch Return or Report of the ſaid Officer or Officers, whether made from the Weight of the Metal and Materials ſo mixed and prepared before the ſame be put into the Pot or Pots, or from the Account ſo taken in the Pots, ſhall be a Charge upon ſuch Maker or Makers of Glaſs. And if the Officer

Officers muſt have Admittance at all Times.

Muſt make a Report in Writing to the Commiſſioners, and leave the Maker a Copy,

Officer or Officers refuſe or neglect to give or leave a true Copy of his Report in Writing, with or for ſuch Maker or Makers of Glaſs, at the Time of taking ſuch Account, on Demand, as aforeſaid, ſuch Officer or Officers ſhall forfeit and pay to ſuch Maker or Makers of Glaſs 40 *s.* for every ſuch *Offence*.

or forfeit 40 *s.*

But every Officer who ſhall be impowered to make ſuch Charge as aforeſaid, muſt, in the firſt Place, be ſworn for the due and faithful Execution of his Office; and the Oath in that Behalf ſhall and may be adminiſtered by *all* or *any* of the *Commiſſioners* of Excife in *Great-Britain*, or by any of His Majeſty's *Juſtices of the Peace*, who ſhall give ſuch Officer a Certificate thereof.

Officers muſt be ſworn.

And all and every ſuch Maker or Makers of Glaſs, reſpectively, are required to keep ſufficient and juſt *Scales* and *Weights*, at the Place or Places where he, ſhe, or they, do make ſuch Glaſs; and to permit and *aſſiſt* the Officer to make uſe thereof, for the Purpoſes hereby appointed, under the Penalty of 50 *l.* to be forfeited and loſt for not keeping ſuch Scales and Weights, or for not permitting and aſſiſting the Officer to uſe the ſame as aforeſaid.

Makers to keep Scales and Weights, and to aſſiſt, or forfeit 50 *l.*

And in every Caſe where the Whole or any Part of the Materials ſhall be loſt, or become unfit for making Glaſs, by the Cracking and Breaking of the Pot or Pots, upon ſatisfactory Proof made to the Commiſſioners, ſuch Allowance ſhall be made for the Loſs, as to the reſpective Commiſſioners ſhall be thought proper and reaſonable.

Of Pots breaking. See *Page* 383.

And, if any Maker of Glaſs or any other Perſon or Perſons obſtruct or hinder any Officer in the Execution of the Powers hereby given, they ſhall forfeit 50 *l.* for every Offence.

Penalty for obſtructing, 50 *l.*

And all the Makers of Glaſs within the *Bills of Mortality* ſhall *every Month*; and every Glaſs-maker in any other Part of *Great-Britain*, once in *every Six Weeks*; make a true Entry in Writing at the next Excife-Office for theſe Duties, of the true Quantity of the Metals and Materials mixt and uſed in each reſpective Making of Glaſs, within ſuch *Month* or *Six Weeks*, on Penalty of 20 *l.* which Entries are to be made upon the Oath of the Maker of ſuch Glaſs, or by their Clerk, Workman, or Servant employed in making the ſame, according to the beſt of their Knowledge and Belief: But, where the Perſon is a known *Quaker*, his ſolemn Affirmation ſhall be taken inſtead of the ſaid Oath; which Oaths or Affirmations *within the Bills of Mortality* ſhall be adminiſtered by the Officer or Officers appointed by the Commiſſioners, or the major Part of them, who ſhall attend at the General Excife-Office in *London* for that Purpoſe. And for all ſuch Entries, Oaths and Affirmations as ſhall be made in all other Parts of *Great-Britain*, by the reſpective Collectors or Superviſors of the proper Diviſion, without any Fee or Charge whatſoever to be demanded for the ſame. BUT no Glaſs-maker ſhall be obliged to go or ſend farther

Makers in *London* and the *Country* when to make Entries, or forfeit 20 *l.*

Entries to be on Oath.

By whom to be adminiſtered.

Where to make Entry.

farther than the Market-Town where his or her Glaſs is made; or the next Market-Town to the Place where his or her Glaſs is made, for the making of ſuch Entries as aforeſaid.

AND all and every Glaſs-maker in *London* or *within the Bills of Mortality* ſhall within *Four Weeks*, and all other and every other Glaſs-maker whatſoever ſhall within *Six Weeks* after he, ſhe, or they ſhall make or ought to have made ſuch Entry as aforeſaid, pay and clear off all the ſaid Duties for Glaſs due from him, her, or them reſpectively: And all and every ſuch Maker of Glaſs who ſhall neglect or refuſe to make ſuch Payment as aforeſaid, ſhall forfeit and loſe *double* the Sum of the Duty whereof the Payment ſhall be ſo refuſed or neglected. When the Duties muſt be paid. Penalty.

AND all Perſons having paid theſe Duties, or who are lawfully intitled to Glaſs from thoſe who have paid the Duty, may EXPORT the ſame; giving ſufficient Security before the Shipping thereof, that all and every Part thereof ſhall be exported and not relanded in any Part of *Great-Britain*: But, if Glaſs ſhipt for Exportation be relanded, the Penalty of the Bond ſhall be levied and recovered for the King's Uſe, and all the Glaſs which ſhall be ſo landed, or the Value thereof, ſhall be forfeited. Who may export Glaſs. Forfeited if relanded.

The EXPORTER of Glaſs is to make Proof on Oath or Affirmation, that the Duty has been paid; which Oath or Affirmation the Collector is impowered and required to adminiſter, and to give a Certificate *gratis*, expreſſing the *Kinds*, and *Weight*, and the *Duties paid* for the ſame; which Certificate being produced to the Cuſtomer or Collector of the Port where the Glaſs ſhall be exported, and Oath or Affirmation being alſo made by the Exporter before the Cuſtomer or Collector (who is authoriſed and required to adminiſter the ſame without Fee or Reward) that the ſaid Glaſs ſo exported is *the ſame* mentioned in the ſaid Certificate, then the ſaid Cuſtomer or Collector ſhall give to the Exporter a *Debenture*, expreſſing the true Weight of the Glaſs ſo exported, and which Debenture being produced to the Collector appointed to receive the ſaid Duties upon Glaſs in ſuch County or Place where the ſaid Glaſs was exported, he ſhall forthwith pay to the Perſons or Agents ſo exporting the ſame a *Drawback* or Allowance as follows: *viz.* For every *Hundred Weight* of all *Crown*, *Plate*, *Flint*, or *white Glaſs*, 9 *s.* 4 *d.* for every *Hundred Weight* of all *Green Glaſs*, 2 *s.* 4 *d.* made in *Great-Britain*: And, if the Collector has not Money in his Hands, then the reſpective Commiſſioners of the *Exciſe* are required to pay the ſaid Debenture out of the Duties upon Glaſs ariſing by this Ordinance, any Thing herein to the contrary notwithſtanding. The Debenture and Drawback on Exportation.

BUT no *Foreign* Glaſs or Bottles, of any Kind whatſoever, are to be *imported* into *Ireland* (other than the Manufacture of *Great-Britain*) ſhall be landed or put on Shore, or taken out of any Ship or Veſſel in *Ireland*, without being forfeited and deſtroyed No *Foreign* Glaſs to be imported into *Ireland*.

ſtroyed in *Ten* Days, after the ſame ſhall be lawfully condemned, with the Ship or Veſſel in which it was imported; with her Tackle, Apparel and Furniture; and the Maſter and every other Perſon concerned in importing the ſame, or that have been aiding or aſſiſting in the Landing or putting the ſame on Shore, ſhall forfeit and pay the Sum of 10*s.* for every *Pound Weight* thereof, and ſo in Proportion for a greater or leſſer Quantity.

Penalty.

AND as many large Contracts were then ſubſiſting, and large Sums of Money advanced on thoſe Contracts to the Glaſs-makers, it was ordained, That all Contracts made before the 25th of *March* 1746, and not performed before that Time, ſhould be void and of no Effect, and the Monies advanced for Glaſs not delivered before the 25th of *March* 1746 to be returned with legal Intereſt for the ſame, from the Times ſuch Sums have been reſpectively paid and advanced.

Contracts how to be avoided.

Of the *Officers* DUTY.

THE Preparations for making the different Sorts of Glaſs, and the Manner of manufacturing them, are ſo various, that I ſhall here only ſet down ſome of the moſt material Obſervations that now occur to me, relating to the Officer's due Performance of his Duty.

Of Making Entry, and giving Notice.

The Glaſs-maker (beſides making Entry of his Furnaces, Warehouſes, *&c.* as in Caſe of the *Exciſe)* muſt give the Officer 12 *Hours* Notice in Writing before he begins to fill or charge any Pot, expreſſing the Hour when ſuch Filling is intended to be begun, and the Weight of the Metal and the Species of Glaſs ſo to be made; and, if ſuch intended Filling ſhall not then be begun, the Notice given is void; and he muſt not begin to fill any Pot or Pots for making Glaſs without giving a freſh Notice, as above mentioned.

Very neceſſary Cautions.

The Security of this Duty depends chiefly on due Attendance and Circumſpection, therefore on every Filling of every Pot be careful to obſerve, that the Species of Glaſs be agreeable to the Trader's Declaration; and if you diſcover the Glaſs made out of any Pot to be *white*, which was declared *for green* Glaſs, you are to charge the whole of ſuch Pot *as White*; and you are to take a ſmall Sample of ſuch Metal out of the Pot, and alſo a Sample of the waſte Glaſs when annealed, to ſupport your Charge, and acquaint your Collector or Superviſor therewith. The Officer upon each Survey muſt have a great Regard both to the Quantity and Condition of the Metal in each Pot, by examining it himſelf with an Iron-Rod; and, if he is oppoſed in ſo doing, it will be deemed an Obſtruction in the Execution of his Office; and, if from any Circumſtance he has Reaſon to ſuſpect any foul Practice, he muſt directly acquaint his Superviſor of it, and conſult with him how to prevent or detect it.

The Officer muſt be careful to keep the Traders up to their Declarations, and to all other Parts of their Duty; and if they

they neglect it, or he diſcovers any Fraud, the Collector and Surviſor muſt be made acquainted with it, that the Trader may be proſecuted according to Law.

Of Pots breaking. When any Pot cracks or breaks that has been charged with the Duty, the Officer is to make and enter an Eſtimate as near as he can of the Quantity of the Metal loſt, which may nearly be computed by obſerving in what Part of the Pot the Crack or Hole is, or by the Time they have been at Work on ſuch Pot; but he muſt never make any Allowance for that Loſs, but an Account thereof upon Oath muſt be ſent up to the Board by the Collector, atteſted by the Officer and his Surviſor, if they believe it to be true.

See *Page* 380.

Of Sunday. Glaſs-makers, from the Nature of their Buſineſs, are obliged to work on *Sundays*; and therefore the Officer on thoſe Days muſt ſo order his Viſits, as to Time, that he may prevent Frauds.

Crown-Glaſs. *Crown-Glaſs* Materials require from 24 to 30 Hours to melt and become fit to make into *Glaſs*, and are calcined before uſed, and generally put cold into the Pots, which are of the open Sort This Glaſs is blown into a globular Form, and by flaſhing is flattened into a circular Table, and then put into an Oven to anneal.

Plate-Glaſs. *Plate-Glaſs* Materials require above 30 Hours to melt and become fit to work, and are put into the Pots cold, which are of the open Sort. This Glaſs is formed into Plates of various Sizes; put into a pretty hot Oven to flatten, and then removed into one more moderately heated, to anneal.

Flint-Glaſs. *Flint-Glaſs* Materials moſtly require upwards of 40 Hours, to become fine and fit to work; it is melted in capped or covered Pots, and, as the Metal is made into Glaſs, it is put into a Lear to anneal. The *Duty* on this (and the THREE above) is 9*s*. 4*d*. per *Hundred Weight*.

Phials. *Apothecaries Phials*, &c. are made at *Flint-Glaſs* Houſes; the Materials are about 30 Hours melting before fit to work: The *Duty* on this is 9*s*. 4*d*. per *Hundred Weight*.

Coloured Glaſs. There is alſo *Enamelled* and *ſtained* or *coloured Glaſs*, theſe are all chargeable with the *Duty* of *Flint-Glaſs*.

Broad-Glaſs. *Broad-Glaſs* Materials are generally put hot out of the Calcar into the Pots, and require about 18 Hours melting before they are fit to work; and then it is blown into a *conical* Form, and is opened upon a convexed Body of Clay, covered with Sand in an hot Oven, called a *Strokall*, and then flattened on an Iron Plate, and put into an Oven to anneal. On all Materials for making of *Broad-Glaſs* of a better Quality than common Bottles, the *Duty* is 9*s*. 4*d*. per *Hundred Weight*; and thoſe for making *Coarſe Green-Glaſs*, the *Duty* is 2*s*. 4*d*. per *Hundred Weight*.

Common Bottles. *Common Bottles* Materials are mixt and put into a Calcar adjoining the Furnace, to heat, and from thence removed hot into the Pots in the Furnace, and are generally about 12 or 14 *Hours* in becoming fit to work.

N. B. In

N. B. In melting the Materials for making the ſeveral Kinds of Glaſs, a *Salt* or *Sandever* ariſeth on the Surface of the Metal, ſo that it cannot be made into Glaſs till the Salt or Sandever is either taken off the Metal with a Scummer, or evaporated by the Fire, which for *Crown* and *Plate Glaſs* generally requireth 18 Hours; for *Flint Glaſs* about 24 Hours; for *Broad* and *Phial Glaſs* about 12 or 14 Hours; and for *Common Bottles* about 8 or 9 Hours, from the Time of *charging* the reſpective Pots.

It has been found by proper Experiments that there are in an *Avoirdupoiſe* Pound Weight of

Flint-Glaſs	08.46	Cubic Inches, and conſequently the *Circular* Diviſors will be for	*Flint*-Glaſs	10.77	and the *Circular* Gauge Points for	*Flint*-Glaſs	3.28
Plate-Glaſs	09.178		*Plate*-Glaſs	11.68		*Plate*-Glaſs	3.42
Crown and *Broad* Glaſs	10.516		*Crown* and *Broad* Glaſs	13.39		*Crown* and *Broad* Glaſs	3.66
Phial and *Bottle* Glaſs	10.178		*Phial* and *Bottle* Glaſs	12.96		*Phial* and *Bottle* Glaſs	3.60

The ALLOWANCES to be made in calculating the Contents of each Pot (in Conſideration of the Glaſs *ſhrinking*, waſte Metal in the Manufacturing, and the Metal left in the Bottom of each Pot) are theſe, *viz.* In Flint and Phial-Pots *one Fourth of the Area, and one Inch in the Bottom:* For ſmall Pots under the Denomination of *Pile Ends*, *Two Tenths of the Area only is ſufficient.* In Crown-Plate and Broad Glaſs-Pots, *One Fourth of the Area, and four Inches in the Bottom.* In Bottle-Pots, *One Fifth of the Area, and three Inches at the Bottom.*

CHAP. XIX.

Concerning the Duty of the Supervisor *and* Collector.

I. *Of the* Supervisor.

THE Supervisor is to keep all the Officers ſtrictly to their Duty, by frequently ſurveying each Diviſion; but this he muſt not do in a conſtant Courſe from one Diviſion to another, as they lie in Order, but accordingly as he finds the Officers more or leſs tardy. AND after he comes into any Diviſion, be it either a Foot-Walk or a Ride, he muſt immediately ſecure the Journal, and endeavour to find out the Officer himſelf, and not ſend for him; and he muſt take the Officer's Books before he can have Notice of the Supervisor's being got into his Diviſion. 'TIS a Part of the Supervisor's Duty to obſerve if the Officers, who are to keep Horſes, are ſo mounted, that they may be able to perform their reſpective Buſineſs as they ſhould do; and to report the ſame to the Commiſſioners. IT is contrary to the Supervisor's Duty to borrow Money, or become in any wiſe indebted to any of the Officers he ſurveys.

Muſt keep the Officers to their Duty.

Muſt ſee the Officers well mounted, &c.

'TIS a Part of the Supervisor's Duty to ſee that the Officers Expences are not unreaſonable at the Sittings. NOR is he to permit them to ſpend their Time in unneceſſary Attendance there, but get them diſpatch'd as ſoon as poſſible, and ſend them into their reſpective Diviſions.

His Duty as to the Officers. Time and Expences at the Sittings.

The Supervisor when he aſks leave for himſelf, or for any Officer, to be abſent, he muſt mention in his Letter at what Time he, or the Officer he aſks Leave for, intends to ſet out, and, if either the Supervisor or Officer do not ſet out at the Time mentioned, neither of them muſt go without a freſh Permiſſion.

THE Supervisor, at ſtated Times, is to enter in his Diary his own Age, and that of every Officer and Aſſiſtant in his Diſtrict, ſetting forth how many each has in Family, and how long each has been employed in the Exciſe: ALSO how long he has been a Supervisor, and how long he has been in his Diſtrict, and the Officers under him in their reſpective Diviſions; and this he is to do in a clear and ſatisfactory Manner in every 2d, 4th, 6th, and 8th round Diaries.

When he muſt enter his own and the Officers Age in the Diaries.

THE Supervisor, in Conjunction with the Collector, is to report to the Board, when any Officer, by Age or otherwiſe, becomes unfit for his Diviſion. AND he is to report how he finds each Officer qualified when he firſt comes into his Diviſion. AND it is his Duty to obſerve no Officer be placed in a Diviſion where he muſt ſurvey any Perſon that may induce

His Duty as ſuperannuated Officers, &c.

him to be partial in the Execution of his Duty. 'TIS highly incumbent on the Supervisor, that he endeavour to come at a compleat understanding of the Nature of every Person's Trade he surveys, and likewise of the Manner of their respective Workings. AND he must also exert his utmost Endeavour he can, to obtain of all Distillers, Victuallers, and Common-brewers the *Best* Lengths, and he must observe whether the Officer comes up to such Lengths, and whether the Quantity and Quality of the Drink charged do correspond with what he may reasonably expect from the Quantity of Goods or Malt made use of. NOW, to prevent Frauds in Steepings of Corn by its lying longer in the Cistern than usual, the Supervisor must acquaint the Officers, that when any Steepings are an uncommon Time in the Cistern, they must not fail to write the Reasons of it in the Fronts of their Books, which the Supervisor is to examine into, and, if he finds it true, he is to attest the same by putting his Name to it.

Must get Insight into Trades, and obtain the best Length, &c.

THE Supervisor is to try the Dimensions of all Casks and Utensils by re-gauging them; and to put the two first Letters of his Name on such as he has so examined. AND he is to examine the Dimensions of all the open Utensils at least *once* every Year, and of as many of the close Casks as he possibly can; and he must take all Opportunities of examining if the Dipping-places in the Backs of Victuallers and Common-brewers be properly and truly fixed.

Must re-examine Dimensions of Casks and Utensils.

But on all Occasions the Supervisor must make an impartial Report how each Officer complies with his Instructions and performs his Business; amply and clearly setting forth the Faults he finds either on Survey or Examination of the Books, and this he must do without any Disguise whatever. 'TIS no Part of the Supervisor's Duty to trouble the Board with a tiresome Account from the Examination of the Books of such Things as are only Slips of the Pen; or of Mistakes, which are merely accidental; or trifling Errors, which have been discovered and properly rectified in due Time, and which cannot be supposed to proceed from careless or feigned Surveys or stamped Gauges; nor to be done to cover any Negligence or Fraud: but when he discovers such Mistakes or Blunders, as appear to be the Effect of careless or feigned Surveying, &c. he is to give an impartial and full Account, that the whole Truth thereof may plainly appear to the Board. THE Supervisor is not to give any Person the Character of any Officer whatsoever except the Collector, without the Board's express Orders. BUT when the Supervisor finds any Officer guilty of a fraudulent Practice, or such other Failing as he believes renders him unfit to be trusted in the Business till the next Sitting; such Officer is to have a Copy of the Supervisor's Report shewed him, and his Answer is to be demanded; both which are immediately to be sent to the Collector to be transmitted to the Board, with his own Observations upon it.

How he must report the Officer, &c.

THE

THE Supervisor, at least a Month before he expects them to be sent, must not neglect sending to the Clerk of the Stores an Account of what Books will be wanting for each Division, having always a Regard to the Time of the Year, especially as to the Candle-books, very few of which need be so large in the Summer as in the Winter. The Clerk of the Stores will, upon due Notice, supply him with all Blanks and Papers he wants. His Duty as to writing for Stores.

THE Supervisor must never deliver any Officer any Specimen-paper before he has signed it with his Name; he must likewise be careful no Officer has more Specimen-paper at one Time than those that are actually in use. AND he is to page and sign all Leaves which there is Occasion at any Time to add to any Officer's Books. His Duty as to Specimen-papers.

HE must send a Bill of Parcels with all new Books he sends to the respective Officers, which must contain an Account of the Number of Books and Permits of each Sort sent at that Time. His Duty as to Permit-books, &c.

IF upon the Receipt of *Permit-books* the Supervisor does not find the Number of each Sort agree with the Account entered on the Outside Book of each Parcel, he must immediately acquaint the Examiner of Permits therewith, and, if he fails in this, he will be accountable for the Number the Examiner charged sent. THE Supervisor, before he delivers out the Permit-books to the Officers, is to write, on the Cover of each Book, the Collection and Division it is for, and sign his Name to it. AND he must charge the Officers not to give a Permit for *foreign* Goods out of a *British* Book, or a Permit for *British* Goods out of a *foreign* Book. And what the Officers must observe as to Permits.

NOR must they cut out any Permit before they have filled up the Counter-part. THEY must begin with the first Leaf, and cut out Leaf after Leaf, without missing any. NOR must they offer to begin a new Book before the former is all used, nor use a Permit-book in any Round it is not titled for.

THE Supervisor must make it his Business to compare the Increase and Decrease (in Quantity as well as Quality) in the Stocks belonging to Dealers in Coffee, Brandy, &c. with the Permits received and given from Time to Time; and when he finds any Disagreement, he must make a strict Inquiry into the Reason of it. They must compare the Stock with the Permits, &c.

HE must diligently observe how the Quantities of Tea, Coffee, &c. which are entered in the Books kept by the Dealers in those Commodities, do agree with their Decreases in Stock from Time to Time; and, when he discovers any considerable Disagreement, he must examine into the Reason of it.

THE Supervisor is to be exceeding careful to discover if any Officer delivers out Permits for larger Quantities than he entered in the Register or Counter-parts: And it is his Duty to compare the Register with the Permits received, and Counter-parts of Permits sent out.

AND at such Time as an Officer gives Notice of his having received any Permit for Coffee, Brandy, &c. after it is expired, the Supervisor must be careful to examine into the Reason of it, *i. e.* whether the

Goods were really accidentally detained upon the Road, or whether that is not made uſe of as an Excuſe, and that the ſame Permit has ſerved to cover more Quantities than one, and, when he has Reaſon to ſuſpect a Fraud, he muſt repreſent the Matter truly to the Board, with all its Circumſtances.

When to account for Chocolate-Labels.

EVERY *three Months* the Superviſor muſt account with the Collector for the Number of Chocolate-Labels ſent from the Office, diſtinguiſhing how many have been made uſe of, and what Number remain in his Hands. ALL Chocolate, Tea, or Coffee condemned in the Country, if it exceeds *five Pounds*, muſt be ſent up to the Office, accompanied with a Permit, importing that it has been condemned; and this muſt be ſent to the Accomptant for the Fines and Forfeitures for the Time being, within one Month after Condemnation.

How his Time muſt be diſpoſed of.

THE Superviſor is not to ſpend more Time in or about his Reſidence, than is neceſſary, and ſo neglect the Buſineſs in the more remote Parts of his Diſtrict; *neither* muſt he hurry over his Buſineſs in the remote Diviſions, nor muſt he ſpend too much Time in Long-journeying, that he may get home the ſooner; *neither* muſt he ſpend more Time than is neceſſary for tranſcribing his Diary, *or* for ſigning the new Journals and Specimens, *or* for ſending away new or old Books, tranſcribing Check Books, examining Dimenſion Books, *&c. Neither* muſt he lay hold of trifling Occurrences to excuſe him from ſurveying, and thereby frequently make Holidays, eſpecially on *Saturdays* and *Mondays*; for he ought to ſurvey as much each Day as is conſiſtent with a perfect Diſcharge of all the Branches of his Duty.

Muſt ſwear to his Expences, *&c.*

THE Superviſor is to make Affidavit to the Truth of every particular Bill of Incidents that amounts to Ten Shillings, or upwards, which he receives of the Collector: And, when he attends the Collector, muſt ride with Piſtols.

The Superviſor's Duty, as to giving Certificates before and after Inſtruction, will be found on *Page* 212.

II. *Of the* Collector.

Drawbacks on Soap.

WHEN any Perſon ſhall apply to the Collector for a Drawback upon Soap ſpent in the Woollen Manufacture, he muſt demand from ſuch Perſon an Entry in Writing, ſigned by him or her, containing the Kinds and Quantities of the Manufactures made, finiſhed, and prepared; and the Days betwixt which and the Place where the ſame were ſo made, *&c.* As alſo of the Kinds and Quantities of Soap actually employed, ſpent, and conſumed therein; from which he muſt make out the Affidavit required, and keep all ſuch Entries on a File for that Purpoſe; and in order to make a Compare from Time to Time of the Quantities of Soap ſpent, and Manufactures waſhed, ſcoured, made, *&c.* therewith, by each Perſon reſpectively, he muſt abſtract the Affidavits into a Book kept for that Purpoſe; which Book, upon his Remove, is to be left with his Succeſſor.

See *Page* 353.

AND

AND the Collector is to adminiſter the Oath to the Manufacturer, or his chief Workman, in the Preſence of the Superviſor, or Officer of the Diviſion; and when he pays any Money on ſuch Affidavits, it muſt likewiſe be done in the Preſence of the Superviſor or Officer, who are, in either Caſe, to atteſt the ſame. BUT the Collector is not to pay the Drawback of any Soap conſumed out of his Collection, though the Manufacturer lives within the ſame; nor to any Perſon, until he is ſatisfied, that the Perſon who applies to him for ſuch Drawback, be the very Perſon to whom the ſaid Drawback is due, or his chief Workman.

A Caution.

THE Collector, his Superviſors, and Officers, muſt likewiſe endeavour to diſcover whether the Manufacturer does not claim more than he actually expended, by inſpecting his Account of Soap uſed, and Manufactures ſcoured, *&c.* and by his comparing the Quantities of each with thoſe of the former Year; and with the Quantities of Soap uſually ſpent by others in ſcouring, *&c.* the like Quantities of ſuch Manufactures; and, if at any Time he diſcovers a Fraud, he muſt immediately acquaint the Board with it.

Of Compounders.

WHERE the Collector finds any Victualler lives ſo remote from the Officer, that he cannot be duly ſurveyed, without preventing the Officer's ſurveying as cloſe as is neceſſary in the more conſiderable Part of his Buſineſs, he and his Superviſor are to acquaint the Commiſſioners therewith, and get their Leave to make a Compoſition with ſuch Victualler for the Duty; which Compoſition is to be made for one Year, but not for leſs than the Produce of the former Year; AND he is to give a Bond for the due Payment of ſuch Compoſition; but where an advantageous Compoſition cannot be made, the Collector muſt join with the Superviſor in giving Directions in the Front of the Officer's Exciſe-Book, how often, and in what manner the ſame ſhall be ſurveyed.

Of Expences at Hearings.

THE Collector muſt, at all Hearings, be as frugal as he can in his Expences, and not to entertain, at the Expence of the Revenue, Perſons who are no way concerned in the Caſes to be heard, nor the Offenders, or their Council, or Witneſſes; for, when the Expences at the hearing of one or more Informations in one Day amount to more than *Forty Shillings*, what exceeds that Sum will be diſallow'd, if any Part of the Expence be occaſioned by entertaining of any Perſons beſides the Juſtices of the Peace and their Servants, and the Council, Officers, and Witneſſes concerned for the King.

Of Surcharges.

ALL the *Surcharges* ſent from the Examiner's Office the Collector muſt receive by equal Proportions from the Officers of the Diviſions where they are made, and from the Superviſor, who neglected to obſerve them, when he examined the Officer's Books and Vouchers, unleſs the People ſurcharged are content to pay them; and the Collector muſt alſo give Notice of any Overcharge, which ſhall be ſent him, to the Perſon overcharged, that he may lay his Complaint, in order to be relieved therein.

Of his Clerk.

THE Collector, before he takes a new Clerk, muſt ſend his Name, Age, and Qualifications, to be approved of by the Commiſſioners, who have directed alſo that no Officer be put to any Expences on account of his Clerk's Ordinaries or Extraordinaries; and that he gives a Receipt (in the Salary Book) for the Salary he pays him, without which it will be diſallowed in his Accompts. WHEN the Collector is off his Round, and his Supernumerary not employed in ſome Officer's Buſineſs, he is to place him as an Aſſiſtant in ſuch Diviſion, as he and his Superviſor think will moſt conduce to his Improvement, and the Service of the Revenue: BUT in Caſe any Officer be ſick, or have Leave to be abſent, he is not to confine the Superviſor in ſuch Officer's Diviſion, but place the Supernumerary therein, if he be capable of performing the Buſineſs; if not, he muſt put ſome other Officer there, and the Supernumerary in that other Officer's Buſineſs, and, whilſt the Supernumerary is ſo employed, the Portmantua muſt be carried by the Collector's Clerk, if he is allowed one; if not, he muſt hire a Perſon to carry it; and, if this be occaſioned by any Officer's being abſent by Leave, ſuch Charge muſt be paid by the Officer ſo abſent; but if it be occaſioned by Sickneſs, ſuch Charge muſt be placed to Incidents, and, during ſuch Time, the Collector is not to claim Riding Charges for the Supernumerary, but make up his Salary equal to the Officer's for the Time he officiates as ſuch.

His Duty as to the Supernumerary.

THE Collector muſt not pay any Supernumerary that ſhall be ordered into his Collection, but from ſuch Time as he comes into it, tho' he may have been ordered ſome Time before; and by the firſt Opportunity he muſt inform the Commiſſioners when he came into his Collection, and how he finds him qualified, whether he has a good Horſe, and proper Inſtruments.

Of paying the Officer that is appointed an Examiner.

WHEN an Officer ſhall be appointed an Examiner, the Collector muſt pay him Officer's Salary for ſo many Days as ſhall be neceſſary for the Performance of his Journey to the Office, and give ſuch Officer a Certificate, expreſſing to what Day he pays him Salary as Officer, and how many Days Salary he has allowed him for his Journey. BUT, when an Examiner is appointed Superviſor, his Salary, as Superviſor, is not to commence until he comes into his Diſtrict; unleſs he brings Orders from the Board to the contrary.

His Duty when an Officer is reduced, or diſcharged, &c.

WHEN the Superviſors or Officers are diſcharged, or reduced, the Collector is not only to give them Copies of their reſpective Diſcharges, or Reducements, but to ſuch Superviſors, or Officers alſo, as reſpectively ſhall ſucceed them, that they alſo may ſee the Faults for which their Predeceſſors incurred the Cenſure of the Board. THE Collector muſt ſee that all the Officers in his Collection have taken the Oaths, and that they comply with their Inſtructions in every Reſpect; and when he finds any that neglect their reſpective Duties, or are extravagant in their Living, or oppreſs the People, he muſt acquaint the Commiſſioners therewith.

CHAP.

CHAP. XX.

Inſtructions for obtaining the Allowance of the Drawbacks, *or* Bounties *on the* Exportation *of ſeveral* Exciſeable Britiſh-made *Goods to* Foreign Parts, *viz.* I. Beer, Ale, Mum, Cyder, *and* Perry. II. Malt *of* Barley *and* Wheat. III. Leather *Tann'd, Taw'd, or Dreſs'd in Oil,* &c. Boots, Shoes, Gloves, *&c.* IV. Soap. V. Candles. VI. Starch. VII. Papers, Paſte-board, *&c.* VIII. Silks, Callicoes, Linens, *&c.* IX. Spirits *drawn from* Barley, Malt, *or* other Corn.

I. *The* Drawback *of the* Exciſe *on Strong* Beer, *Strong* Ale, Mum, Cyder, *and* Perry *made in* Great-Britain*.

Of the Drawback on Beer, Ale, Mum, Cyder and Perry.

ANY of the *aforeſaid* Liquors may be ſhip'd off to be *exported* into *Foreign Parts*, as Merchandiſe, from the *common Keys* of any *lawful Port*, within the *uſual* Hours of *Exciſe*, in the Preſence of a ſworn *Gauger*, or other ſworn *Officer* of *Exciſe*, upon *Notice* given at the *Exciſe-Office*, within the Limits whereof the ſaid Liquors were *brew'd* or *made*; and upon the ſaid *Gauger's* or *Officer's certifying* the *Quantity* of ſuch Liquors *ſhip'd off*, to the *Officers* of *Exciſe* where the *Entry* was made, they are to *repay* the *Exciſe* of the ſaid Liquors ſo exported, to the *Brewer* or *Maker* thereof, within *one Month* after Exportation, *deducting* 3 d. *per Ton Charges*, &c. but no *Drawback* to be allowed for what is taken aboard *for the Ship's Uſe.*

The aforeſaid Liquors *unladen*, or *laid on Land*, or put into *any other Ship*, or *Veſſel*, within *Great-Britain*, are *forfeited*, and 50 l. for *every Caſk.*

* The Acts of Parliament relating to the *Drawback, &c.* on theſe *Liquors*, which for more particular Satisfaction may be conſulted, are, 1 *W.* and *M. Chap.* 22. *Sect.* 1, 2. 5 *Ann. Chap.* 8. *Art.* 7. 4 *Geo.* I. *Chap.* 3. *Sect.* 8, 10. 7 *Geo.* I. *Chap.* 20. *Sect.* 2.

Of the Bounty on Malt exported.

II. *The* Bounty *on* Malt Exported.

	Price *per* Quarter, *Winchester* Measure.	Bounty *per* Quarter, *Winchester* Measure.
Malt made of *Barley* *	1 4 0	0 2 6
Malt made of *Wheat*	2 8 0	0 5 0

The Exciſe of 6 *d.* per Buſhel not to be included.

But the *Exciſe* of 6 *d. per Buſhel* muſt not be reckon'd *into* the Price of the *Malt*.

When the above *Sorts* of Malt *ground* or *unground* do not *at the Port of Exportation* exceed the reſpective *Prices* above-mentioned, and ſhall be ſhip'd aboard a *Britiſh Ship*, whereof the *Maſter* and at leaſt *two Thirds* of the *Mariners* are *Britiſh Subjects*, in order to be *exported to Parts beyond the Seas*, the *Exporter* is to be allowed the *Bounties* above-mentioned, provided a *Certificate in Writing* under the Hand of the *Exporter*, containing the *Quantity* and *Quality* of the *Malt*, be firſt brought to the *Collector of the Port*, and the Truth thereof confirmed by the *Oath* of *one or more* credible Perſon or Perſons,

A Bond to be given.

and *a Bond* be given by the *Exporter* of 200 l. for every 100 *Tons*, *(i. e.* 8 s. *per Quarter)* that the ſame ſhall *be exported into Parts beyond the Seas*, and not be *re-landed* in *Great-Britain*, or the *Iſlands* of *Guernſey* or *Jerſey*

After what Rate to be allow'd.

But then this *Bounty* upon *Malt* is only to be allowed after the Rate of 30 *Quarters*, and no more, for every 20 *Quarters* of *Barley*, or *other Corn* or Grain entered and made into Malt for Exportation, as ſhall appear *by a Certificate from the Officer*, with whom the *Corn* or Grain, intended to be made into Malt for Exportation, *was entered*. The aforeſaid *Bounty* to be paid by the Collector of the Port *upon Demand* made by the *Exporter*, unleſs he has not ſufficient Money in his Hands, and then he is to certify the ſame to the *Commiſſioners of the Cuſtoms*, who are to cauſe the Money to be paid by the *Receiver-General* within *three Months*.

When the Bond is to be deliver'd up.

The aforeſaid *Bond* given for the *Exportation* may be delivered up to be cancelled, upon producing a *Certificate* under the *common Seal* of the *Chief Magiſtrate*, in any Place *beyond the Seas*, or under the *Hand* and *Seal* of two known *Britiſh* Merchants, teſtifying, that the *Corn* was there *landed*; or upon *Proof* by *credible Perſons*, that it was taken by *Enemies*, or *periſhed in the Seas*.

Malt re-landed forfeited, and treble the Penalty of the Bond.

Malt relanded in *Great-Britain* is forfeited, with treble the Value, beſides the Penalty of the *Bond*, and ſince continued Yearly with the *Malt-Act*.

III. *The*

* The Acts relating to the *Drawback* on *Malt* and *Barley* Exported, are, 1 *W.* & *M. Chap.* 12. *Sect.* 2. 12 & 13 *W.* III. *Chap.* 10. *Sect.* 91, 5 *Ann. Chap.* 29. *Sect.* 10. 3 *Geo.* II. *Chap.* 7. *Sect.* 15.

III. *The* Drawback *on* Hides *and* Calves-Skins, Tann'd, Taw'd, *or* Dreſs'd, *in* Great-Britain *; *for* every Pound Avoirdupoiſe Weight *is* two Thirds *of the Duties that have been paid for the ſame.*

Of the Drawback on Hides and Calves Skins.

All *Hides* or *Calves Skins*, *dreſs'd* or *curried*, are alſo to draw back *One Penny* per *Pound Weight*, as they ſhall weigh at the *Cuſtom-houſe*.

Of Hides and Calves Skins dreſs'd or curried.

Note, All *Sheep Skins*, and *Lamb Skins*, which are *tann'd*, *taw'd*, or *dreſs'd*, are to draw back *two Thirds* of the Duty.

Of Sheep Skins and Lamb Skins.

N. B. See *Part* II. *Chap.* X for a *Table*, ſhewing the Duties payable for the ſeveral Sorts of *Leather*.

The *Hides* and *Calves Skins* having paid Duties *at the Time of Tanning*, and having been mark'd with a *Stamp*, to denote the ſame, the aforeſaid *two third Parts* of thoſe Duties may, upon *Exportation* to Foreign Parts, be repaid by the Collector of the Duty at that Port, *provided* ſufficient Security be firſt given to the *Collector of the Cuſtoms*, that they ſhall not be *re-landed* in *Great-Britain*; whereupon the *ſaid Collector* is to grant a *Debenture*, expreſſing the *Kinds*, *Quantities*, and *Weights* exported; and this *Drawback* may be allowed, altho' the *Marks have not been ſeen* by the Officers of the Cuſtoms, *provided* that *Oath* be made before the *Collector of the Cuſtoms* that the *Hides* or *Skins* contain'd in the reſpective *Bales* or *Packs* were mark'd with the *Stamps*, denoting the Payment of the Duties, and *how much* the Duties amount to, together with *the Weight* exported; but, if any of the ſaid *Skins* or *Hides* are *re-landed*, they are *forfeited*, and *treble* the Value.

Hides and Calves Skins tanned, having paid Duty.

The *Drawback* on *Boots*, *Shoes*, *Gloves*, and *other Manufactures* made of Leather *tann'd*, *taw'd*, or *dreſs'd* in *Great-Britain*, is for every Pound *Avoirdupoiſe Weight*, *One Penny Halfpenny*.

How the ſeveral Sorts of *Hides* and *Skins* are to be *mark'd* or *ſtamp'd*, is ſhewn *Part* II. *Chap* X. and ſo are the ſeveral *Denominations* of *Tann'd Hides*, which are comprehended under the Names of *Sole Leather*, *Upper Leather*, *Bends*, *Clouts*, *Butts*, *and Backs*.

Concerning the marking Hides and Skins, &c.

IV. *The*

* The Acts of Parliament, which relate to the *Drawback* on *Leather* of all Sorts, and Manufactures made of *Leather* exported, are, 9 *Ann. Chap.* 11. *Sect.* 30, 40. 10 *Ann.* 26. *Sect.* 6. 12 *Ann. Chap.* 9. *Sect.* 68, 69. 3 *Geo.* I. *Chap.* 7.

Of the Drawback on Soap.

IV. *The* Drawback *on* Britiſh-made SOAP *, *for* every *Pound* Avoirdupoiſe *Weight is* One Penny Half-penny.

Which Duty (having been paid by the *Maker*) may be repaid by the *Collector*, upon Exportation, *provided* Security be given to the Collector of the Port *before Shipping*, that they ſhall not be *re-landed* in *Great-Britain*, and *Oath* be made before the *Collector of Exciſe*, that the Duty has been paid, and a *Debenture* granted by the *Collector of the Cuſtoms*, expreſſing the *Kinds* and *Quantities*, and the Shipping, teſtified by the *Searcher*: But, if *re-landed*, forfeited, or *the Value*, beſides the *Penalty* of the *Bond*.

Of the Drawback on Wax and Tallow Candles.

V. *The* Drawback *on* Britiſh-made CANDLES †. Wax Candles *the Pound* Avoirdupoiſe *Weight is* Eight-pence: All other Candles *the Pound* Avoirdupoiſe *Weight is* One Penny.

Which Duties (having been paid by the *Maker*) may be repaid by the *Collector*, upon Exportation, *provided* Security be given to the *Collector of the Cuſtoms*, before *Shipping*, that they ſhall not be *re-landed* in *Great-Britain*, and *Oath* be made before the *Exciſe Collector*, that the Duties have been paid, and his *Certificate* thereof with the *Kinds* and *Quantities*; and likewiſe *Oath* before the *Collector of the Port*, that they are *the ſame* mentioned in ſuch *Certificate*: Whereupon the *Collector of the Cuſtoms* is to grant a *Debenture*, expreſſing the true Quantity exported; but, if *relanded*, forfeited, or *the Value*, beſides the *Penalty* of the *Bond*.

Of the Drawback on Starch.

VI. *The* Drawback *on* Britiſh-made STARCH §, *for* every *Pound* Avoirdupoiſe *Weight is* Two-pence.

Which Duty (having been paid by the *Maker*) may be repaid by the *Collector*, upon Exportation to Foreign Parts by way of Merchandiſe, *provided* ſufficient Security be given to the *Collector of the Port* before *Shipping*, that it ſhall not be

* The Acts relating to the Exportation of *Britiſh-made* Soap, are, 10 *Ann. Chap.* 19. 12 *Ann. Seſſ.* 2. *Chap.* 9. 3 *Geo.* I. *Chap.* 7. 6 *Geo.* I. *Chap.* 4.

† The Acts relating to the Exportation of *Britiſh-made* Candles, are 8 *Ann. Chap.* 9. 9 *Ann. Chap.* 6 & 21. 3 *Geo.* I. *Chap.* 7.

§ The Acts relating to the Exportation of *Britiſh-made* Starch, are, 10 *Ann. Chap.* 26. 12 *Ann. Seſſ.* 2. *Chap.* 9. 3 *Geo.* I. *Chap.* 7. 6 *Geo.* I. *Chap.* 4.

be *re-landed* in *Great Britain*, and Proof be made upon *Oath* before the *Collector of the Cuſtoms*, that the Duties have been paid: Whereupon the ſaid *Collector* is to grant a *Debenture*, expreſſing the *Kinds* and *Quantities*, with the *Shipping*, teſtified by the *Searcher*; but, if *re-landed*, forfeited, or *the Value*, beſides the *Penalty* of the *Board*.

VII. *The* Drawback *to be allowed on* Britiſh-made Papers, Millboard, Paſteboard, *and* Scaleboard; *as alſo on* Printed, Painted, *or* Stained Paper *for* Hangings *, *are* the reſpective Duties thereon, *which you will find ſet down* Part II. Chap. XIV. Of the Drawback on Paper, &c.

Which Duties are to be *repaid* on *Exportation* under the ſame Regulations as *Britiſh-made Soap*; for which ſee *Page* 394.

VIII. *The* Drawback *on* Silks, Callicoes, Linens, *and* Stuffs, *printed, painted, ſtain'd, and dyed in* Great Britain, *is ſpecify'd by Acts* 10 *and* 12 *of* Anne †. Of the Drawback on Silks, Callicoes, &c.

N. B. *Callicoes, Linens*, and *Fuſtians*, dyed throughout of one Colour, and Stuffs made of Woollen, or whereof the greateſt Part in Value ſhall be *Woollen*, are *excepted* out of the ſaid Acts. The *Exporter*, before Shipping, to give Notice to the proper Officer appointed by the *Commiſſioners of the Cuſtoms*, when and where he intends to pack up the Goods, who is to take Care that the Stamps *be taken off* from each Piece, and to return an Account of the Kinds and Quantities to the Officer appointed to receive the ſame, which Duties are to be repaid upon Exportation under the ſame Regulation as *Britiſh-made Paper* above.

IX. *Concerning the* Allowance *of the* Drawbacks *or* Bounties *on the Exportation of ſeveral* Exciſeable Britiſh Goods *to* Foreign Parts §. Of the Drawback on Exciſeable *Britiſh* Goods.

Bounty on *Spirits* exported, drawn, from *Barley* or *other Corn*, payable at the *Cuſtom-houſe*.

For

* The Acts relating to the Exportation of *Britiſh-made* Paper, &c. are, 10 *Ann. Chap.* 19. 12 *Ann. Seſſ.* 2, *Chap.* 9. 3 *Geo.* I. *Chap.* 7. 6 *Geo.* I. *Chap.* 4

† The Acts relating to the Exportation of *Silks, Callicoes*, &c. are the ſame that relate to the Exportation of *Britiſh-made* Paper, next above.

§ The Act relating to the Exportation of the ſeveral *Exciſeable Britiſh Goods*, is 6 *Geo.* II. *Chap* 17. *Sect.* 10. And I apprehend there is ſome further Allowance on Exportation by the Acts of the 16th and 19th of *Geo.* II.

For every *Ton* of *Spirits* drawn from *Barley*, *Malt*, or *other Corn*, there ſhall be paid to the *Exporter* by the *Commiſſioners of the Cuſtoms*, or the proper Officers belonging to them, when *Barley* is at 24 s. *per Quarter*, or *under*, on ſuch Proof of the Exportation thereof, as is directed by the Act 1 *Will.* and *Mary*, for encouraging the *Exportation of Corn*, out of the Duties liable to the Payment of the *Bounties* on *Corn* exported, *One Pound Ten Shillings*, and *ſo in Proportion* for a *greater* or *leſſer* Quantity.

Of the Drawback on Spirits.

The Drawback *of the* Exciſe *on* Spirits *drawn from Corn in* Great-Britain, *without any Mixture of* other Materials *.

Upon Oath before *two* or *more* Commiſſioners of Exciſe, or Juſtices of the Peace, of the Place from whence ſuch *Spirits* are intended to be *exported*, that the ſame are drawn from *Corn* in *Great-Britain*, without any *Mixture* with any other Materials; and that the Duties are duly *enter'd* and *paid*, and that the ſame are exported for *Merchandiſe* to be ſpent *beyond the Seas*; and upon producing a Certificate under the Hands of the Officers of Exciſe, for the Port or Place where ſuch *Spirits* were ſhip'd, of the Quantity ſo ſhip'd, and that it was *in Preſence* of ſuch Officer; the *Exporter* is to be allowed or paid back by the *Commiſſioners of Exciſe*, or their Collector of the Port of Exportation, *Four Pounds Eighteen Shillings per Ton*, and ſo *in Proportion* for a *greater* or *leſſer* Quantity; in full of all *Drawbacks* and *Bounties* that can be made for the ſame, except the Bounty of *One Pound Ten Shillings* per *Ton*, payable at the *Cuſtom-houſe*.

CHAP. XXI.

Of Cask-Gauging,

Of Gauging at the Water-ſide.

As practiſed at the Water-ſide *in the Port of* London.

See alſo *Part* I. *Chap.* XXV. and *Plate* 4. *Fig.* 3, 4, 5.

THIS *Part* of the Art of *Gauging* is comprehended under the *Menſuration* of *Solids*; becauſe the *Contents* of all Sorts of Veſſels uſed *for Liquors*, are computed *as tho' they were really ſolid Bodies*, as by the following Dimenſions of the reſpective *Gallons* will appear.

The

* The Act relating to the Exportation of the ſeveral *Exciſeable Britiſh Goods*, is, 6 *Geo.* II. *Chap.* 17. *Sect.* 10. And I apprehend there is ſome further Allowance on Exportation, by the Acts of the 16th and 19th 8 *Geo.* II.

The Standard *Ale* Quart, now kept in the *Exchequer*, made in Purſuance of the 12th of *Henry* the VIIth, *Cap.* 5. contains *two Pounds* of Wheat *Troy Weight*, which having, by Experiment, been found to contain $70\frac{1}{2}$ *Cubical Inches*; therefore the *Ale* and *Beer Gallons*, which by 12. *Car.* II. *Cap.* 23. *Sect.* 8. is declared to contain *four* of thoſe *Standard* Quarts, muſt contain 282 *Cubical Inches*. See *Part* I. *Pages* 120, 122, and 185.

And it is enacted and declared by 5 *Ann. Cap.* 27. *Sect.* 17. that any *round Veſſel*, commonly called a *Cylinder*, having an *even Bottom*, and being 7 Inches *Diameter* throughout, and 6 Inches *deep* from the *Top* of the *Inſide* to the *Bottom*, or any Veſſel containing 231 *Cubical Inches*, and no more, ſhall be deem'd and taken to be a lawful *Wine Gallon*.

The Ton, Pipe, and Hogſhead.

And that { 252 / 126 / 63 } *ſuch Gallons* ſhall be deemed { a *Ton* / a *Pipe* or *Butt* / an *Hogſhead* } of *Wine*.

Ale and Wine Gallons.

So that, As { the *Ale* or *Beer* Gall. is to con. 282 / the *Wine* Gallon is to contain 231 } *Cubical or Solid Inches*.

Therefore, as often as *either* of theſe *Cubes* are contained in any other Number of *Cubical Inches*, ſo many *Ale* and *Beer* or *Wine* Gallons are contained therein; ſo that if a *Caſk* was to be reduced to a *Rectangular Figure*, and the *Content* in *Inches* divided by the ſaid *Cubes*, the *Quotient* would exhibit the Quantity of *Gallons* it contains.

Caſks eaſily reduced to a Cylinder.

But, as *Caſks* are made round inſtead of being reduced to a *Rectangular Figure*, they may more eaſily be reduced to a *Cylinder*, under which *Form* the reſpective *Gallons* contain, *viz.*

The *Ale* Gallon 359 } *Cylindric* or *Circular* Inches. See
The *Wine* Gallon 294 } *Part* I. *Page* 47.

Contents of Caſks how found.

Having thus defined the *Ale* and *Wine* Gallons, I ſhall now proceed to ſhew how the Contents of any *Caſk* may be found in either of *thoſe Gallons*: Now, in order to perform this, you muſt *firſt*, by the Aſſiſtance of proper Inſtruments, take the *reſpective Dimenſions* of the *Caſks*, viz.

The *Diameter* at the *Bung within* the Caſk,
The *Diameter* at either *Head*, ſuppoſing the two to be *equal*,
The *Length* of the Caſk *within*
} In *Inches* and *Decimal Parts* of *Inches*.

Concerning the Bung and Head of Caſks.

And, in taking the *Dimenſions* of the Caſk, you muſt obſerve what is ſaid in *Part* I. *Chap.* XXV. that the *Bung-hole* be in the *middle* of the Caſk, and that as far as poſſible the *Staves* be *regular* and *even within*, and that the *Heads* of the Caſks be equal and *truly Circular*, and that in taking the *Length* of the Caſks with a *Pair* of *Sliding-Callipers* you obſerve, that they are ſo contrived, as to make an Allowance

Of Thickneſs of the Heads.

lowance of 2 *Inches* for the *Thickneſs* of the *two Heads*, which is equal to the *uſual* Thickneſs of the Heads of *Pipes*, *Butts*, and other *large Caſks*; but as the *two Heads* of an *Hogſhead* are uſually not more than $1\frac{1}{2}$ *Inch thick*, therefore $\frac{1}{2}$ an *Inch* muſt be added to the *Length* found by the *Callipers*; and ſo for the Proportion of what the two Heads of any other Caſk may want of the 2 Inches allowed by the *Callipers*; and if, upon boring the Heads of any Caſk, they are found to *exceed* the 2 Inches allowed by the *Callipers*, then the *Exceſs* muſt be *deducted* from the *Length found*, and the *Remainder* will be the *true Length within* the Caſk after the *Dimenſions* are taken: you muſt next conſider the *Form* or *Shape* of the Caſk, as under which of the *Varieties* it may be comprehended; for, altho' the *Dimenſions* of ſeveral Caſks may be equal, yet according to the *Curvature* of the *Staves* they will contain *more* or *leſs* Liquor; therefore it is plain, that no one *certain* or *general Rule* can be preſcribed to find the true Content of *all Sorts* of Caſks. *See* Plates 3 and 5.

Shape of the Caſk to be conſidered, and why.

See *Plate* I. *Fig.* 18.

A and B repreſent *two Rods* to *ſlide* by each other, and which are *divided* into *Inches*, and theſe into *Decimals* or *Tenths*. C and D repreſent thoſe Parts of the *Callipers*, which are to *touch* both *Ends* of the Caſk you want the *Length* of; when the *Callipers* are ſo fixed, that C and D touch the *Heads* of the Caſk, the *Length* of it is ſhewn by the *Figures* upon the *Rod* A and B.

With the Callipers there are uſually *two other* Rods made uſe of, called the *Head* and the *Bung* Rods, for finding the *Diameter* at the *Ends* and *Bung* of the *Caſk*; and theſe three Inſtruments are accurately made by Mr. *John Gilbert* (living in *Poſtern-Row*, *Tower-Hill*) Mathematical Inſtrument Maker to the *Cuſtom-Houſe* in *London*, and the *Out-Ports*.

As to the ſeveral *Forms* or *Shapes* of common Caſks, ſuch as *Pipes*, *Butts*, *Hogſheads*, *Anwms*, *Barrels*, &c. it is agreed, that they may all be pretty nearly comprehended under ſome One of the Solids. *See Chap.* XXV. of *Part* I.

A Note.

Note, No Caſk will contain *more* than the *middle Fruſtum* of a *Spheroid*, or *leſs* than the *middle Fruſtum* of *two Cones*; ſo that all the *Varieties* will be between *thoſe two*; and if, by obſerving the *Form* of a Caſk, it be thought not to be ſtrictly of any of the *five Varieties*, ſuch *Allowance* muſt be made by *Diſcretion*, as will reduce it to the neareſt of the ſaid *Forms*; the propereſt Method of making which *Allowance* being either by *adding to* or *ſubtracting from* the *real Length*.

Caſks how to be entered in the Officers Books.

Tho' in the *Theory* of Gauging it is proper, for *Demonſtration Sake*, to treat of the *ſeveral Forms* under which all Caſks may be comprehended, and to ſhew how their *Contents* may be found; yet in the Practice of *the Cuſtoms* and *Exciſe*

at the *Water-ſide* in the Port of *London*, as moſt Caſks may be juſtly comprehended under the *firſt Variety*, and, when they are of any *other Form*, it would be neceſſary to ſpecify it in the *Land-waiters* and *Exciſe-Officers* Books, for the Information of thoſe who are afterward to examine and checque the Accompts; therefore the Contents of all Caſks are inſerted in the ſaid *Officers Books*, as if they were really of the *firſt Variety*; and in Conſideration of their being of any other of the aforeſaid *five Varieties*, or a *Medium* between any of them, they make ſuch *Allowance* in the *Length*, either by *adding* or *ſubtracting*, as from the Judgment of their Obſervations will *reduce* them to *that* Form; but this requires much Practice and nice Obſervation, more than I fear can be met with among the Officers of *any other* Port.

Since I am treating of Caſk-Gauging, &c. *practiſed at the* Cuſtom Houſe; *the following Remarks about Imported Goods may poſſibly be of ſome Uſe to thoſe Officers who ſurvey Sea-Port-Towns.*

ANCHOVIES, the little Barrel to contain 16 Pounds of Fiſh. Anchovies.

APPLES, the Barrel to contain 3 Buſhels. Apples.

ARGOL, in Caſks, the Tare is 14 lb. *per Cent.* Argol.

POT-ASHES, the Tare is 10 lb. *per Cent.* Pot-Aſhes.

PEARL-ASHES, of and from *Germany*, the ſame as *Pot-Aſhes.* Pearl-Aſhes.

WEED-ASHES the LAST, to contain 12 Barrels of 200 lb. each. Weed-Aſhes.

BASKET-RODS, the Bundle is to be 3 Feet about at the Band. Basket-Rods.

SPRUCE-BEER is always imported in Kegs, or half Kegs; the Keg containing, when full, 4 Gallons, and the half Keg 2 Gallons. Spruce-Beer.

So that 10 ½ *whole*, or 21 *half* Kegs, when full, are eſteemed a Barrel for the *Cuſtoms*; and 8 whole or 16 half Kegs, when full, are eſteemed a Barrel for the *Exciſe*. But, as the ſaid Kegs and half Kegs are never imported quite full, therefore ſome are uſually emptied to fill up the reſt; and ſometimes (tho' but ſeldom) they are not filled up, and then about 1 in 10 is allowed, in Conſideration of what they want of being full. Kegs and half Kegs.

N. B. The *Barrel* to contain { for the *Cuſtoms* 42 / for the *Exciſe* 32 } *Wine Gall.*

HIDES in the Hair, and not chargeable with the new Duties, are only to be tallied at the Delivery; but the following Sorts being *tann'd*, *taw'd*, or *dreſs'd*, are to be *ſtamp'd* with a proper Hammer, to denote the Payment of the new Duties granted by 9 *Anne*, *chap.* 11. and 10 *Anne*, *chap.* 26. Hides.

See *Part* II. *Chap.* X. *Page* 340.

Buffalo,

Buffalo. Elk. Loſhee. Ruſſia. *Buffalo, Elk, Loſhee, Ruſſia,* and all other Hides dreſſed in Oil or Tann'd.

Cow. Horſe. Gelding. Mare. Steer. *Cow, Horſe, Gelding, Mare, Steer,* and all other Hides dreſs'd in Alum and Salt, or Meal, or otherwiſe Taw'd.

Honey. HONEY, 12 Pounds make a Gallon.
42 Gallons make a Barrel.

Hops. HOPS in Bags, Tare 4 lb. *per Cent.*

Mum. MUM the Barrel to contain, { for the *Cuſtoms* 42 / for the *Exciſe* 32 } *Wine Gallons.*

Mum is imported in Caſks of a certain Size, *viz.*

Barrels. *Barrels*, containing when full 48
Half-Barrels. *Half-Barrels*, containing when full 24 } *Gallons.*

According to which Contents they are always paſſed, it being impracticable to gauge them by reaſon of the Froth, and the Bung's not being in the middle; tho' if a new Bung was to be bored, and the Dimenſions exactly taken, and the Contents computed as for other Caſks (a *Spheroid*) they would be found to be near what follows, *viz.*

Head.	*Bung.*	*Length.*	*Full Content*
18.5	22	32.2	48 *Wine Gallons.*

But, as the ſaid *Barrels* and *Half-Barrels* are never imported quite full, therefore ſome are uſually emptied to fill up the reſt; and if there is any Part of a Caſk remaining which is not uſed in filling up, the Ullage Content is found by taking the Content of it by the *Diagonal Rule*, (in *Plate* I *Fig.* 13.) and the Bung and Wet Inches are uſual, by which find its Ullage, as has been taught in *Part* I. *Page* 179, *&c.*

Nuts. CHESS NUTS, *Small-Nuts*, and *Wall-Nuts*, are rated by the Barrel, which is 3 Buſhels, and are generally imported looſe, but, after having been meaſured on board by a City-Meter, are put into Bags, containing (generally) one Barrel each, in order to be brought on Shore.

Olives. OLIVES, if imported in large Caſks, muſt be gauged, but, if in ſmall Caſks or Jars, the Contents may be computed; and, according to the preſent Practice in the Port of *London*, have an Allowance of $\frac{1}{5}$ Part in Conſideration of the Liquor.

Oils. OILS in certain Caſks, 1 in 20 allowed for Leakage; under 10 none.

In Candy Barrels, *Tare* 29 Pounds *per* Barrel.
In uncertain Caſks, *Tare* 18 Pounds *per Cent.*

Note. { 7 $\frac{1}{2}$ Pounds make a Gallon. / 252 Gallons make a Ton. }

Oils 7 Pounds and a half to a Gallon. Tho' *Oils* of all Sorts pay Duty by Meaſure, yet it is not the Practice to gauge them, but if imported in uncertain

Caſks, they are weighed, and the Groſs Weights (after the Deduction of *Draught* and *Tare*) are reduced to Meaſure by accounting 7 ½ Pounds to the Gallon: For the Operations whereof take the following Rules.

RULE *the Firſt.*

The firſt Rule. Multiply the *Groſs* Hundreds Weight (after Deduction of Draught) by the *net* Pounds in One Hundred Weight, after the Deduction of the *Tare*, that is, by 94; and the Product will be the total Net Pounds; *or* the Tare may be deducted from the Groſs Weight, and the Remainder be reduced to Pounds.

Which may be multiplied by 2, to bring them into Half Pounds, and divided by 15 the half Pounds in a Gallon: *Or* the Net Pounds may be divided by 7.5, *Or* the Net Pounds and their ⅓ Part may be added together, and the laſt Figure towards the Right-hand of the Total cut off. *All* which *Methods* will reduce them to Gallons; and thoſe Gallons, being divided by 252, will produce Tons.

An Example. *Example.* Suppoſe 36 *C.* Groſs after Deduction of Draught. Common Multiplier 94 Net Pounds *per* Hundred Weight.

144
324

⅓)3384 Net Pounds
add 1128

252)451.2 Gallons (1.79 Tons.

252

1992
1764

2280
2268

12

Or thus,

3384
2

15)67680(451.2 Gallons.

Or thus,

7.5)3384.00(451.2 Gallons.

RULE *the Second.*

The ſecond Rule. Divide the Groſs Hundred Weight (after Deduction of Draught) by 20, and the Quotient will be Tons, eſteeming each 5 Hundred Weight in the Remainder, as 63 Gallons,

and each ſingle Hundred Weight, as 12 ½ Gallons, which being added together, from the Total deduct 1 ⅓ Gallons for each Ton, and the Remainder will be the Net Quantity.

An Example. *Example.* Suppoſe 36 *C.* Groſs Weight as before, how many Gallons doth it contain?

Operation.

20) 36 (1 Ton

5) 16 (3 multiply'd by 63.
gives 189 Gallons.
1 12.5

And ⅕ of 63 = 12.5 201.5 Gallons.

	Ton.	*Gall.*
Anſwer	1	201.5

Train Oil. TRAIN-OIL of the *Britiſh* Plantations. In uncertain Caſks is allowed 18 Pounds *per Cent.* but in certain Caſks, as Barrels, it is the Practice in the Port of *London* to allow 50 Pounds *per* Barrel for Tare.

Oils in Jars, *&c.* OILS in Jars and Cheſts: The whole Jars are uſually paſſed at 24, and ſometimes at 22 and 26 Gallons each; the whole Cheſts are uſually paſſed at 8 Gallons each; and the half Jars and half Cheſts, at half the Quantity of the whole.

Rum. RUM, Caſks of, generally contain theſe Dimenſions, *viz.*

H.	*B.*	*L.*	*Cont. Wine Gall.*
26.8	32.1	34.3	108
27.2	32.	36.8	116
26.7	32.4	33.6	107
27.4	32.6	33.	108
28.	32.4	34.6	113
26.8	31.7	32.7	101

Wines. WINES,

The Ton to contain	252	*Gallons.*
The Pipe or Butt	126	
The Hogſhead	63	
The Awm	42	

Imported in Caſks, if enter'd *filled*, are to be delivered by the Gauge of the Wine contained in the Caſk; but if enter'd *unfill'd* according to the full Gauge of the Caſk, tho' there may have been very conſiderable Leakage.

Outs what Caſks ſo eſteemed, Every *Hogſhead* of Wine, which ſhall be run out, and not full 7 Inches, or above, left therein; and every *Butt* or *Pipe*, not above 9 Inches, ſhall be accounted for *Outs*, and the Merchant to pay no Duty for the ſame. But ſuch *Outs* muſt not be removed from the Keys, 'till ſeen and allow'd by the Land Surveyors.

Imported in *Flaſks*, or *Bottles*, *Florence* Wines, the whole Cheſt uſually contains 40 Flaſks, or 60 Betties, and then are paſſed at 8 Gallons, tho' Part be broken or empty; and the half Cheſt, containing 20 Flaſks, or 30 Betties, at 4 Gallons: But, if they contain more or leſs Flaſks, they muſt be reduced to that Proportion, being 5 Flaſks, or $7\frac{1}{2}$ Betties *per* Gallon. In Flaſks and Bottles.

French, or other Wines, in Flaſks, or Bottles are uſually paſſed at 5 Flaſks, or Bottles, to the Gallon; but if, upon meaſuring one or more, they are found to contain more or leſs, they muſt be paſſed according to their real Contents. *French* Wine.

If at landing any Wines the Merchant ſhall refuſe to pay or ſecure the Duties, but is willing to deliver them up to the Crown to be publickly ſold, in order to be diſtilled into Brandy, or made into Vinegar; the Ullage Contents of ſuch Caſks as are refuſed, muſt be taken at the Time of Landing and Delivering up. Of Refuſe Wines.

And, when the ſaid Wines have been publickly ſold, a Certificate, ſetting forth the whole Proceeding, is to be made out, and ſigned by the Officers concern'd.

CASTILE SOAP, { in double Serons, about 300 Weight, Tare 30 *lb.* / in ſingle Serons, about 300 Weight, Tare 16 *lb.* / in Cheſts, about $2\frac{1}{2}$ or 300 Weight, Tare 40 *lb.* } Caſtile Soap.

CHAP. XXII.

To gauge a SHIP, *that is, to find her* Burthen *or* Tonnage.

To perform this, *Ship-wrights* obſerve theſe *three Rules*.

1. THat the *Dimenſions* are taken in *Feet*, and that if, you meaſure the Ship *within*, you ſhall find her *Content* or *Burthen* ſhe will hold or take in. First Rule.

2. If you take the *Dimenſions* on the *Outſide*, to her *light Mark* as ſhe *ſwims* being *unladen*, you ſhall have the *Content* of the *empty Ship*. Second Rule.

3. But, if you meaſure from her *light Mark* to her *full Draught of Water being laden*, you ſhall have the *true Burthen* of the Ship: And then the *Length*, *Breadth*, and *Depth*, multiplied *one into another*, and divided by 100 for *Men of War* (becauſe 100 *ſolid Feet* are *one Ton*) which gives *an Allowance* for *Guns*, *Maſts*, *Sails*, *Cables*, *Anchors*, &c. which are all a *Burthen*, but *no Tonnage*, *the Quotient* is her *Tonnage*. And the *Square Root* of 100 is = 10 the *Gauge Point* on the *Sliding Rule*. Third Rule.

Fourth Rule. 4. But for *Merchant Men*, the *Length*, *Breadth*, and *Depth* in *Feet* multiplied *one into another*, and *divided* by 95, gives her *Burthen*. And the *Square Root* of 95 = 9.74 is the *Gauge Point* on the *Sliding Rule*.

Geneſ. vi. 15. The *true Proportions* of NOAH's ARK were theſe.

Length of the *Keel*	300	*Feet.*	Its *Burthen* as a
Breadth of the *Midſhip Beam*	50		*Man of War* 4500
Depth in the *Hold*	30		*Merchant* 4736 $\frac{82}{95}$

The Cuſtom at *London*. But at *London* the Ship-wrights have a Cuſtom of *Gauging* or *Meaſuring* thus: They *multiply* the *Length* of the *Keel* into the *Breadth* of the Ship at the *broadeſt Place* taken from *Outſide* to *Outſide*, and the *Product* of that by *half the Breadth*, this Product *divided* by 94 for *Merchant Men*, and by 100 for *Men of War*, the *Quotients* are the *Tons* the Ship will carry.

Above Rules liable to Objections. But none of the above Rules are *perfectly true*, becauſe *two* Ships by *this Rule*, of *equal Breadth* and *Length*, ſhall be of *equal Burthen*, notwithſtanding the *Fulneſs* or *Sharpneſs* of thoſe Veſſels, which may differ their Burthens very much. But the

The trueſt Method. trueſt Way of *gauging* a Ship is beſt done by meaſuring her as *a Piece of Timber* of the *ſame Form*, and ſo meaſure her by *Pieces*, which *Sum* of the *Particulars* in *ſolid Feet added together*, and *divided as before*, gives the Ship's *Burthen* in *Tons* *.

For Practice, I ſhall add an *Example* by *Pen* and *Sliding Rule*, as follows.

An Example. *Example.* Let the *Length* of a *Ship's Keel* be 80 *Feet*, the *Breadth* 30, and *half Breadth* or *Depth in the Hold* 15, I demand its *Burthen* in *Tons*?

Operation.

Operation.

Length	80
Breadth	30
Square	2400
Half Breadth	15
	12000
	2400

94) 36000 (383 *ferè Tons.*

By

* *N. B.* The Law enjoins the aſcertaining the Tonnage of Ships in the following Words: "For the preventing Diſputes that may ariſe concerning the *Admeaſurement* of Ships laden "with Brandy and other Spirits, or Ships hovering on the Coaſt, the following RULE ſhall "be obſerved, *viz.* Take the *Length* of the *Keel within Board*, (ſo much as ſhe treads on the "Ground) *and the Breadth within Board by the Midſhip Beam, from Plank to Plank, and half "the Breadth for the Depth*, then *multiply the Length by the Breadth*, and that *Product* by the "*Depth*, and *divide* the *whole* by *Ninety-four*, and the *Quotient* will give the true Contents "*of the Tonnage*, according to which *Rule* the *Tonnage* of all *ſuch* Ships and Veſſels ſhall be "meaſured and aſcertained, any *Law*, *Cuſtom*, or *Uſage* to the contrary in any wiſe not-"withſtanding." *See* 6th *Geo.* I. *Chap.* 21.

By the *Sliding Rule*.

A. B. A. B. By the Sliding Rule.

1. *As* 1 *is to* 80, *ſo is* 30 *to* 2400.
Unity. Length. Breadth. 4th Numb.

2. *As* 1 *is to* 2400, *ſo is* 15 *to* 36000.
Unity. 4th Numb. Depth. 5th Numb.

3. *As* 94 *is to* 1, *ſo is* 36000 *to* 383 *Tons ferè.*
Diviſor. Unity. 5th Numb. Anſwer.

But more expeditiouſly on the *Lines* C and D by Help of the *Gauge Point* 9 69.

Firſt find a *Geometrical Mean* between the *Length* 80, and *Breadth* 30, as is taught in *Part* I. on *Page* 43, which is 49 *nearly*.

Now ſay,

D. C. D. C.

As 9.69 *is to* 15, *ſo is* 49 *to* 383 *Tons.*
Gauge Pt. Depth. Mean. Content.

Having the Dimenſions *of* one *Ship*, together *with the* Burthen *thereof*, *to find the* Dimenſions *of* another *Ship of any other Burthen*, greater *or* leſſer *than the given Ship*.

The RULE.

Divide the *Burthen* of *one* Ship by the *Burthens* of the *other*, (it matters not whether the given Ship's Burthen be *greater* or *leſſer* than the Ship *required*) and *extract* the *Cube Root* of the *Quotient*; *multiply* the *Dimenſions* of the *given* Ship by this *Cube Root*, and the *three* ſeveral *Products* ſhall be the *Dimenſions* of the *other* Ship, if its *Burthen* be greater than the *Burthen* of the given Ship: But, if it be *leſſer*, then *divide* the *Length*, *Breadth*, and *Depth* in the *Hold* by the *Cube Root* of the *Difference* of their *Burthens* (as above directed) the *three* ſeveral *Quotients* are the *Dimenſions* of the *other* Ship *leſſer* than the *given one*. The Rule.

Example. Let the *Length* of a *Ship's Keel* be 45 *Feet*, the *Breadth* of the *Midſhip-beam* be 17.3, and the *Depth* in the *Hold* 8.7 *Feet*, the *Content* of this 72 *Tons*, I demand the *Dimenſions of another Ship*, whoſe *Burthen* ſhall be 360 *Tons*? An Example.

Operation.

Burth. Quot. Cube Root. Operation.

72.) 360 (5. (1.71 is a *common Multiplier*.

	Length.	*Breadth.*	*Depth.*
	45	17.3	8.7
Multiplier	1.71	1.71	1.71
	45	173	87
	315	1211	609
	45	173	87
Anſwer	76.95	29.583	14.877

By the Sliding Rule.

By the *Sliding Rule*, on the *Lines* D *and* E.

Firſt, for the *Length of the Keel.*

E. D. E. D.
As 72 *is to* 45, *ſo is* 360 *to* 77.
Content. Length. Content. Length.

Second, for the *Breadth of the Midſhip-beam.*

E. D. E. D.
As 72 *is to* 17.3, *ſo is* 360 *to* 29.5.
Content. Breadth. Content. Breadth.

Laſtly, for the *Depth of the Hold.*

E. D. E. D.
As 72 *is to* 8.7, *ſo is* 360 *to* 14.9.
Content. Depth. Content. Depth.

Suppoſe there be given *the* Mould *and* Burthen *of* one Ship, *how to find* another Ship *of the* ſame Mould *of any* aſſign'd *Burthen*, greater *or* leſſer.

The RULE.

The Rule. The *Length*, *Breadth*, and *Depth* of the *Ship* taken in *Feet*, *multiply* the *Cubes* of *thoſe Dimenſions* by as many as you would have the *other* Ship *bigger* than the *given* Ship, and the *Cube Roots* of theſe *Products* are the *Anſwer*.

Or,

A ſecond Rule. If you would have *another Ship leſſer* than the *propoſed* Ship, then *divide* the *Cube* of *thoſe Dimenſions* by 1, 2, 3, *&c.* the *Cube Roots* of thoſe *Quotients* are the *Dimenſions* of the *other Ship* ſo much *leſſer* than the *given* Ship.

An Example. *Example.* Admit a *Merchant Ship* whoſe *Burthen* is 72 *Tons*, the *Length* of the *Keel* 45 *Feet*, the Breadth of the *Midſhip Beam* 17.3, and the *Depth* 8.7, and it is required to build *another Ship*, whoſe *Burthen* ſhall be 5 Times *greater* than the Ship *given*, I demand what muſt be the *Dimenſions* of the Ship *required?*

Operation.

Operation.

Length.	*Breadth.*	*Depth.*	Operation.
45	17.3	8.7	
45	17.3	8.7	
225	519	609	
180	1211	696	
2025	173	75.69	
45	299.29	8.7	
10125	17.3	52983	
8100	89787	60552	
91125	209503	658.503	
5	29929	5	
455625 (76.9	5177.717	3292.515 (14.877	
	5		
	25888.585 (29.583		

The several *Cube Roots* are the *Answer.* { *Length* 76.9 / *Breadth* 29.583 / *Depth* 14.877 } *Feet.*

By the *Sliding Rule.*

Multiply the Numbers *severally* one *into* another on the *Lines* A and B, *and also* by 5, as is taught on *Page* 14; then set the *Lines* D and E even, then against the *Cube* on the *Line* E is the *Root* on the *Line* D. By the Sliding Rule.

Containing NEW TABLES *for a* Gauger's Salary *at* 50 *l.* per Annum *for the* common Year, or 365 *Days*; *and for the* Leap Year, *or* 366 *Days*; *with their* Explanation, Construction, *and* Use. *Also a* TABLE *for finding the* Number *of* Days *for* any Time *assigned*; *with a* TABLE *of proper* Multiplicators *for* Salaries, *from* 5 *to* 1000 *l.* per Annum. By C. LEADBETTER.

Salary at 50 *l. the* common Year.

Days	JUNE.				JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.			
	l.	*s.*	*d.*	*q.* 365	*l.*	*s.*	*d.*	*q.* 365	*l.*	*s.*	*d.*	*q.* 365	*l.*	*s.*	*d.*	*q.* 365	*l.*	*s.*	*d.*	*q.* 365	*l.*	*s.*	*d.*	*q.* 365
1	46	16	11	3 : 125	0	19	2	0 : 200	5	4	1	1 : 95	9	9	0	1 : 355	13	11	2	3 : 65	17	16	1	3 : 325
2	46	19	8	2 : 310	1	1	11	0 : 20	5	6	10	0 : 280	9	11	9	1 : 175	13	13	11	2 : 250	17	18	10	3 : 145
3	47	2	5	2 : 130	1	4	7	3 : 205	5	9	7	0 : 100	9	14	6	0 : 360	13	16	8	2 : 70	18	1	7	2 : 330
4	47	5	2	1 : 315	1	7	4	3 : 25	5	12	3	3 : 285	9	17	3	0 : 180	13	19	5	1 : 255	18	4	4	2 : 150
5	47	7	11	1 : 135	1	10	1	2 : 210	5	15	0	3 : 105	10	0	0	0 : 000	14	2	2	1 : 75	18	7	1	1 : 335
6	47	10	8	0 : 320	1	12	10	2 : 30	5	17	9	2 : 290	10	2	8	3 : 185	14	4	11	0 : 260	18	9	10	1 : 155
7	47	13	5	0 : 140	1	15	7	1 : 215	6	0	6	2 : 110	10	5	5	3 : 5	14	7	8	0 : 80	18	12	7	0 : 340
8	47	16	1	3 : 325	1	18	4	1 : 35	6	3	3	1 : 295	10	8	2	2 : 190	14	10	4	3 : 265	18	15	4	0 : 160
9	47	18	10	3 : 145	2	1	10	1 : 220	6	6	0	1 : 115	10	10	11	2 : 15	14	13	1	3 : 85	18	18	0	3 : 345
10	48	1	7	2 : 330	2	3	10	0 : 40	6	8	9	0 : 300	10	13	8	1 : 195	14	15	10	2 : 270	19	0	9	3 : 165
11	48	4	4	2 : 150	2	6	6	3 : 225	6	11	6	0 : 120	10	16	5	1 : 15	14	18	7	2 : 90	19	3	6	2 : 350
12	48	7	1	1 : 335	2	9	3	3 : 45	6	14	2	3 : 305	10	19	2	0 : 200	15	1	4	1 : 275	19	6	3	2 : 170
13	48	9	10	1 : 155	2	12	0	2 : 230	6	16	11	3 : 125	11	1	11	0 : 20	15	4	1	1 : 95	19	9	0	1 : 355
14	48	12	7	0 : 340	2	14	9	2 : 50	6	19	8	2 : 310	11	4	7	3 : 205	15	6	10	0 : 280	19	11	9	1 : 175
15	48	15	4	0 : 160	2	17	6	1 : 235	7	2	5	2 : 130	11	7	4	3 : 25	15	9	7	0 : 100	19	14	6	0 : 360
16	48	18	0	3 : 345	3	0	3	1 : 55	7	5	2	1 : 315	11	10	1	2 : 210	15	12	3	3 : 285	19	17	3	0 : 180
17	49	0	9	3 : 165	3	3	0	0 : 240	7	7	11	1 : 135	11	12	10	2 : 30	15	15	0	3 : 105	20	0	0	0 : 000
18	49	3	6	2 : 350	3	5	9	0 : 60	7	10	8	0 : 320	11	15	7	1 : 215	15	17	9	2 : 290	20	2	8	3 : 185
19	49	6	3	2 : 170	3	8	5	3 : 245	7	13	5	0 : 140	11	18	4	1 : 35	16	0	6	2 : 110	20	5	5	3 : 5
20	49	9	0	1 : 355	3	11	2	3 : 65	7	16	1	3 : 325	12	1	1	0 : 220	16	3	3	1 : 295	20	8	2	2 : 190
21	49	11	9	1 : 175	3	13	11	2 : 250	7	18	10	3 : 145	12	3	10	0 : 40	16	6	0	1 : 115	20	10	11	2 : 10
22	49	14	6	0 : 360	3	16	8	2 : 70	8	1	7	2 : 330	12	6	6	3 : 225	16	8	9	0 : 300	20	13	8	1 : 195
23	49	17	3	0 : 180	3	19	5	1 : 255	8	4	4	2 : 150	12	9	3	3 : 45	16	11	6	0 : 120	20	16	5	1 : 15
24	50	0	0	185	4	2	2	1 : 75	8	7	1	1 : 335	12	12	0	2 : 230	16	14	2	3 : 305	20	19	2	0 : 200
25	0	2	8	3 : 365	4	4	11	0 : 260	8	9	10	1 : 155	12	14	9	2 : 50	16	16	11	3 : 125	21	1	11	0 : 20
26	0	5	5	3 : 365	4	7	8	0 : 80	8	12	7	0 : 340	12	17	6	1 : 235	16	19	8	2 : 310	21	4	7	3 : 205
27	0	8	2	2 : 190	4	10	4	3 : 265	8	15	4	0 : 160	13	0	3	1 : 55	17	2	5	2 : 130	21	7	4	3 : 25
28	0	10	11	2 : 10	4	13	1	3 : 85	8	18	0	3 : 345	13	3	0	0 : 240	17	5	2	1 : 315	21	10	1	2 : 210
29	0	13	8	1 : 195	4	15	10	2 : 270	9	0	9	3 : 165	13	5	9	0 : 60	17	7	11	1 : 135	21	12	10	2 : 30
30	0	16	5	1 : 15	4	18	7	2 : 90	9	3	6	2 : 350	13	8	5	3 : 245	17	10	8	0 : 320	21	15	7	1 : 215
31					5	1	4	1 : 275	9	6	3	2 : 170					17	13	5	0 : 140				

The Salary Table *for a* Common Year *continued.*

Days	DECEMBER.					JANUARY.					FEBRUARY.					MARCH.					APRIL.					MAY.				
	l.	*s.*	*d.*	*q.*	365	*l.*	*s.*	*d.*	*q.*	365	*l.*	*s.*	*d.*	*q.*	365	*l.*	*s.*	*d.*	*q.*	365	*l.*	*s.*	*d.*	*q.*	365	*l.*	*s.*	*d.*	*q.*	365
1	21	18	4	1	135	26	3	3	1	295	30	8	2	2	190	34	4	11	0	260	38	9	10	1	155	42	12	0	2	230
2	22	1	1	0	220	26	6	0	1	115	30	10	11	2	10	34	7	8	0	80	38	12	7	0	340	42	14	9	2	50
3	22	3	10	0	40	26	8	9	0	300	30	13	8	1	195	34	10	4	3	265	38	15	4	0	160	42	17	6	1	235
4	22	6	6	3	225	26	11	6	0	120	30	16	5	1	15	34	13	1	3	85	38	18	0	3	345	43	0	3	1	55
5	22	9	3	3	45	26	14	2	3	305	30	19	2	0	200	34	15	10	2	270	39	0	9	3	165	43	3	0	0	240
6	22	12	0	2	230	26	16	11	3	125	31	1	11	0	20	34	18	7	2	90	39	3	6	2	350	43	5	9	0	60
7	22	14	9	2	50	26	19	8	2	310	31	4	7	3	205	35	1	4	1	275	39	6	3	2	170	43	8	5	3	245
8	22	17	6	1	235	27	2	5	2	130	31	7	4	3	25	35	4	1	1	95	39	9	0	1	355	43	11	2	3	65
9	23	0	3	1	55	27	5	2	1	315	31	10	1	2	210	35	6	10	0	280	39	11	9	1	175	43	13	11	2	250
10	23	3	0	0	240	27	7	11	1	135	31	12	10	2	30	35	9	7	0	100	39	14	6	0	360	43	16	8	2	70
11	23	5	9	0	60	27	10	8	0	320	31	15	7	1	215	35	12	3	3	285	39	17	3	0	180	43	19	5	1	255
12	23	8	5	3	245	27	13	5	0	140	31	18	4	1	35	35	15	0	3	105	40	0	0	0	000	44	2	2	1	75
13	23	11	2	3	65	27	16	1	3	325	32	1	1	0	220	35	17	9	2	290	40	2	8	3	185	44	4	11	0	260
14	23	13	11	2	250	27	18	10	3	145	32	3	10	0	40	36	0	6	2	110	40	5	3	3	5	44	7	8	0	80
15	23	16	8	2	70	28	1	7	2	330	32	6	6	3	225	36	3	3	1	295	40	8	2	2	190	44	10	4	3	265
16	23	19	5	1	255	28	4	4	2	150	32	9	3	3	45	36	6	0	1	115	40	10	11	2	10	44	13	1	3	85
17	24	2	2	1	75	28	7	1	1	335	32	12	0	2	230	36	8	9	0	300	40	13	8	1	195	44	15	10	2	270
18	24	4	11	0	260	28	9	10	1	155	32	14	9	2	50	36	11	6	0	120	40	16	5	1	15	44	18	7	2	90
19	24	7	8	0	80	28	12	7	0	340	32	17	6	1	235	36	14	2	3	305	40	19	2	0	200	45	1	4	1	275
20	24	10	4	3	265	28	15	4	0	160	33	0	3	1	55	36	16	11	3	125	41	1	11	0	20	45	4	1	1	95
21	24	13	1	3	85	28	18	0	3	345	33	3	0	0	240	36	19	8	2	310	41	4	7	3	205	45	6	10	0	280
22	24	15	10	2	270	29	0	9	3	165	33	5	9	0	60	37	2	5	2	130	41	7	4	3	25	45	9	7	0	100
23	24	18	7	2	90	29	3	6	2	350	33	8	5	3	245	37	5	2	1	315	41	10	1	2	210	45	12	3	3	285
24	25	1	4	1	275	29	6	3	2	170	33	11	2	3	65	37	7	11	1	135	41	12	10	2	30	45	15	0	3	105
25	25	4	1	1	95	29	9	0	1	355	33	13	11	2	250	37	10	8	0	320	41	15	7	1	215	45	17	9	2	290
26	25	6	10	0	280	29	11	9	1	175	33	16	8	2	70	37	13	5	0	140	41	18	4	1	35	46	0	6	2	110
27	25	9	7	0	100	29	14	6	0	360	33	19	5	1	255	37	16	1	3	325	42	1	1	0	220	46	3	3	1	295
28	25	12	3	3	285	29	17	3	0	180	34	2	2	1	75	37	18	10	3	145	42	3	10	0	40	46	6	0	1	115
29	25	15	0	3	105	30	0	0	0	000						38	1	7	2	330	42	6	6	3	225	46	8	9	0	300
30	25	17	9	2	290	30	2	8	3	185						38	4	4	2	150	42	9	3	3	45	46	11	6	0	120
31	26	0	6	2	110	30	5	5	3	5						38	7	1	1	335						46	14	2	3	305

Salary at 50 *l.* *the* Leap Year.

Days	JUNE.					JULY.					AUGUST.					SEPTEMBER.					OCTOBER.					NOVEMBER.				
	l.	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366
1	46	17	1	3	: 222	0	19	1	2	: 12	5	3	9	3	: 222	9	8	6	1	: 66	13	10	5	3	: 222	17	15	2	1	: 66
2	46	19	10	2	: 276	1	1	10	1	: 66	5	6	6	2	: 276	9	11	3	0	: 120	13	13	2	2	: 276	17	17	11	0	: 120
3	47	2	7	1	: 330	1	4	7	0	: 120	5	9	3	1	: 330	9	13	11	3	: 174	13	15	11	1	: 33	18	0	7	3	: 174
4	47	5	4	1	: 18	1	7	3	3	: 174	5	12	0	1	: 18	9	16	8	2	: 228	13	18	8	1	: 18	18	3	4	2	: 228
5	47	8	1	0	: 72	1	10	0	2	: 228	5	14	9	0	: 72	9	19	5	1	: 282	14	1	5	0	: 72	18	6	1	1	: 282
6	47	10	9	3	: 126	1	12	9	1	: 282	5	17	5	3	: 126	10	2	2	0	: 336	14	4	1	3	: 126	18	8	10	0	: 336
7	47	13	6	2	: 180	1	15	6	0	: 336	6	0	2	2	: 180	10	4	11	0	: 24	14	6	10	2	: 18	18	11	7	0	: 24
8	47	16	3	1	: 234	1	18	3	0	: 24	6	2	11	1	: 234	10	7	7	3	: 78	14	9	7	1	: 23	18	14	3	3	: 78
9	47	19	0	0	: 288	2	0	11	3	: 78	6	5	8	0	: 288	10	10	4	2	: 132	14	12	4	0	: 288	18	17	0	2	: 132
10	48	1	8	3	: 342	2	3	8	2	: 132	6	8	4	3	: 342	10	13	1	1	: 186	14	15	0	3	: 342	18	19	9	1	: 186
11	48	4	5	3	: 30	2	6	5	1	: 180	6	11	1	3	: 30	10	15	10	0	: 240	14	17	9	3	: 30	19	2	6	0	: 240
12	48	7	2	2	: 84	2	9	2	0	: 240	6	13	10	2	: 84	10	18	6	3	: 294	15	0	6	2	: 84	19	5	2	3	: 294
13	48	9	11	1	: 138	2	11	10	3	: 294	6	16	7	1	: 138	11	1	3	2	: 348	15	3	3	1	: 138	19	7	11	2	: 348
14	48	12	8	0	: 192	2	14	7	2	: 348	6	19	4	0	: 92	11	4	0	2	: 36	15	6	0	0	: 192	19	10	8	2	: 36
15	48	15	4	3	: 246	2	17	4	2	: 36	7	2	0	3	: 249	11	6	9	1	: 90	15	8	8	3	: 246	19	13	5	1	: 90
16	48	18	1	2	: 300	3	0	1	1	: 90	7	4	9	2	: 300	11	9	6	0	: 144	15	11	5	2	: 300	19	16	2	0	: 144
17	49	0	10	1	: 354	3	2	10	0	: 144	7	7	6	1	: 354	11	12	2	3	: 198	15	14	2	1	: 354	19	18	10	3	: 198
18	49	3	7	1	: 42	3	5	6	3	: 198	7	10	3	1	: 42	11	14	11	2	: 252	15	16	11	1	: 42	20	1	7	2	: 252
19	49	6	4	0	: 96	3	8	3	2	: 252	7	13	0	0	: 96	11	17	8	1	: 306	15	19	8	0	: 96	20	4	4	1	: 306
20	49	9	0	3	: 150	3	11	0	1	: 306	7	15	8	3	: 150	12	0	5	0	: 360	16	2	4	3	: 150	20	7	1	0	: 360
21	49	11	9	2	: 204	3	13	9	0	: 360	7	18	5	2	: 204	12	3	2	0	: 48	16	5	1	2	: 204	20	9	10	0	: 48
22	49	14	6	1	: 258	3	16	6	0	: 48	8	1	2	1	: 258	12	5	10	3	: 102	16	7	10	1	: 258	20	12	6	3	: 102
23	49	17	3	0	: 312	3	19	2	3	: 102	8	3	11	0	: 312	12	8	7	2	: 156	16	10	7	0	: 312	20	15	4	2	: 156
24	50	0	0			4	1	11	2	: 156	8	6	8	0	: 000	12	11	4	1	: 210	16	13	4	0	: 000	20	18	0	1	: 210
25	0	2	8	3	: 54/366	4	4	8	1	: 210	8	9	4	3	: 54	12	14	1	0	: 264	16	16	0	3	: 54	21	0	9	0	: 264
26	0	5	5	2	: 108	4	7	5	0	: 264	8	12	1	2	: 108	12	16	9	3	: 318	16	18	9	2	: 108	21	3	5	3	: 318
27	0	8	2	1	: 162	4	10	1	3	: 318	8	14	10	1	: 162	12	19	6	3	: 6	17	1	6	1	: 162	21	6	2	3	: 6
28	0	10	11	0	: 216	4	12	10	3	: 6	8	17	7	0	: 216	13	2	3	2	: 60	17	4	3	0	: 216	21	8	11	2	: 60
29	0	13	7	3	: 270	4	15	7	2	: 60	9	0	3	3	: 270	13	5	0	1	: 114	17	6	11	3	: 270	21	11	8	1	: 114
30	0	16	4	2	: 324	4	18	4	1	: 114	9	3	0	2	: 324	13	7	9	0	: 168	17	9	8	2	: 324	21	14	5	0	: 168
31						5	1	1	0	: 168	9	5	9	2	: 12						17	12	5	2	: 12					

The Salary Table *for the* Leap Year *continued.*

DAYS	DECEMBER.					JANUARY.					FEBRUARY.				
	l.	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d*	*q.*	366
1	21	17	1	3	: 222	26	1	10	1	: 66	30	6	6	2	: 276
2	21	19	10	2	: 276	26	4	7	0	: 120	30	9	3	1	: 330
3	22	2	7	1	: 330	26	7	3	3	: 174	30	12	0	1	: 18
4	22	5	4	1	: 18	26	10	0	2	: 228	30	14	9	0	: 72
5	22	8	1	0	: 72	26	12	9	1	: 282	30	17	5	3	: 126
6	22	10	9	3	: 126	26	15	6	0	: 336	31	0	2	2	: 180
7	22	13	6	2	: 180	26	18	3	0	: 24	31	2	11	1	: 234
8	22	16	3	1	: 234	27	0	11	3	: 78	31	5	8	0	: 288
9	22	19	0	0	: 288	27	3	8	2	: 132	31	8	4	3	: 342
10	23	1	8	3	: 342	27	6	5	1	: 186	31	11	1	3	: 30
11	23	4	5	3	: 30	27	9	2	0	: 240	31	13	10	2	: 84
12	23	7	2	2	: 84	27	11	10	3	: 292	31	16	7	1	: 138
13	23	9	11	1	: 138	27	14	7	2	: 348	31	19	4	0	: 192
14	23	12	8	0	: 192	27	17	4	2	: 36	32	2	0	3	: 246
15	23	15	4	3	: 246	28	0	1	1	: 90	32	4	9	2	: 300
16	23	18	1	2	: 300	28	2	10	0	: 144	32	7	6	1	: 354
17	24	0	10	1	: 354	28	5	6	3	: 198	32	10	3	1	: 42
18	24	3	7	1	: 42	28	8	3	2	: 252	32	13	0	0	: 96
19	24	6	4	0	: 96	28	11	0	1	: 306	32	15	8	3	: 150
20	24	9	0	3	: 150	28	13	9	0	: 360	32	18	5	2	: 204
21	24	11	9	2	: 204	28	16	6	0	: 48	33	1	2	1	: 258
22	24	14	6	1	: 258	28	19	2	3	: 102	33	3	11	0	: 312
23	24	17	3	0	: 312	29	1	11	2	: 156	33	6	8	0	: 000
24	25	0	0	0	: 000	29	4	8	1	: 210	33	9	4	3	: 54
25	25	2	8	3	: 54	29	7	5	0	: 264	33	12	1	2	: 108
26	25	5	5	2	: 108	29	10	1	4	: 318	33	14	10	1	: 162
27	25	8	2	1	: 162	29	12	10	3	: 6	33	17	7	0	: 216
28	25	10	11	0	: 216	29	15	7	2	: 60	34	0	3	3	: 270
29	25	13	7	3	: 270	29	18	4	1	: 114	34	3	0	2	: 324
30	25	16	4	2	: 324	30	1	1	0	: 168					
31	25	19	1	2	: 12	30	3	9	3	: 222					

DAYS	MARCH.					APRIL.					MAY.				
	l.	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d.*	*q.*	366	*l.*	*s.*	*d*	*q.*	366
1	34	5	9	2	: 12	38	10	5	3	: 222	42	12	5	2	: 12
2	34	8	6	1	: 66	38	13	2	2	: 276	42	15	2	1	: 66
3	34	11	3	0	: 120	38	15	11	1	: 330	42	17	11	0	: 120
4	34	13	11	3	: 174	38	18	8	1	: 18	43	0	7	3	: 174
5	34	16	8	2	: 228	39	1	5	0	: 72	43	3	4	2	: 228
6	34	19	5	1	: 282	39	4	1	3	: 126	43	6	1	1	: 282
7	35	2	2	0	: 336	39	6	10	2	: 180	43	8	10	0	: 336
8	35	4	11	0	: 24	39	9	7	1	: 234	43	11	7	0	: 24
9	35	7	7	3	: 78	39	12	4	0	: 288	43	14	3	3	: 78
10	35	10	4	2	: 132	39	15	0	3	: 342	43	17	0	2	: 132
11	35	13	1	1	: 186	39	17	9	3	: 30	43	19	9	1	: 186
12	35	15	10	0	: 240	40	0	6	2	: 84	44	2	6	0	: 240
13	35	18	6	3	: 294	40	3	3	1	: 138	44	5	2	3	: 294
14	36	1	3	2	: 348	40	6	0	0	: 192	44	7	11	2	: 348
15	36	4	0	2	: 36	40	8	8	3	: 246	44	10	8	2	: 36
16	36	6	9	1	: 90	40	11	5	2	: 300	44	13	5	1	: 90
17	36	9	6	0	: 144	40	14	2	1	: 354	44	16	2	0	: 144
18	36	12	2	3	: 198	40	16	11	1	: 42	44	18	10	3	: 198
19	36	14	11	2	: 252	40	19	8	0	: 96	45	1	7	2	: 252
20	36	17	8	1	: 306	41	2	4	3	: 150	45	4	4	1	: 306
21	37	0	5	0	: 360	41	5	1	2	: 204	45	7	1	0	: 360
22	37	3	2	0	: 48	41	7	10	1	: 258	45	9	10	0	: 48
23	37	5	10	3	: 102	41	10	7	0	: 312	45	12	6	3	: 102
24	37	8	7	2	: 156	41	13	4	0	: 000	45	15	3	2	: 156
25	37	11	5	1	: 210	41	16	0	3	: 54	45	18	0	1	: 210
26	37	14	1	0	: 264	41	18	9	2	: 108	46	0	9	0	: 264
27	37	16	9	3	: 318	42	1	6	1	: 162	46	3	5	3	: 318
28	37	19	6	3	: 6	42	4	3	0	: 216	46	6	2	3	: 6
29	38	2	3	2	: 60	42	6	11	3	: 270	46	8	11	2	: 60
30	38	5	0	1	: 114	42	9	8	2	: 324	46	11	8	1	: 114
31	38	7	9	0	: 168						46	14	5	0	: 168

The Explanation *and* Use *of the* Caſh *Tables for* Salary.

Explanation of the Tables.

Each Page contains *ſix* Columns, and in each Column there are *five* Rows of Figures; the *firſt* on the *Left Hand* is Pounds, the *ſecond* Shillings, the *third* Pence, the *fourth* Farthings, and the *fifth* is *Fractional Parts* of a Farthing, whoſe *Denominator* in a *Common Year* is 365, the *Days* in the ſaid Year; and the *Denominator* belonging to thoſe *Numerators* in a Leap Year is 366, the *Days* in the ſaid Year.

One *Example* or two will make all plain.

An Example.

Example. In a *Common* Year what *Salary* has an Officer due to him the 25th of *July*, at 50 *l. per* Annum?

Look for the 25th of *July* in the Table for a *Common Year*, and over-againſt it you will find 4 *l.* 4 *s.* 11 *d.* 0 *q.* : 260, which *Fraction* is $\frac{260}{365}$, that is, *two third* Parts of a Farthing.

If the *Officer* be removed out of one *Collection* into another, then out of this Salary you are to deduct the *Charity* *, which is 3 *d.* per *Pound*. *Thus* by the Rule of *Three* Direct:

l.	*d.*	*l.*	*s.*	*d.*	*q.*
If 1	3	4	4	11	1
20		20			
20		84			
12		12			
40		179			
20		84			
240		1019			
4		4			
If 960 *q.*	3 *d.*	4077 *q.*			
		3			
		960) 12231 (12 *d.*			
		960			
		2631			
		1920			
		Remains 711			
		4			
		960) 2844 (2 *q.*			
Anſwer 1 *s.* 0 *d.* 2 *q.* $\frac{924}{960}$		*Remains* 924			

Now,

* See the End of *Chap.* XIX. *Part* II.

Now, this 1 *s.* 0 *d.* 2 *q.* $\frac{224}{365}$ *ſubtracted* from the *Salary* in the Table, *viz.* 4 *l.* 4 *s.* 11 *d.* $\frac{1}{4}$ *ferè*, the *Remainder* 4 *l.* 3 *s.* 10 *d.* $\frac{1}{4}\frac{262740}{359400}$ is the *exact* Salary that the *Officer* is to receive the 25th of *July* at 50 *l. per Annum*; the like obſerve for any other Day in the Year.

After what I have here ſaid concerning the *Uſe* of the Table for a *Common Year*, it is needleſs to *trouble* the Reader with any Examples of the *Uſe* of the Table for the *Leap* Year, it being in all Reſpects the ſame.

The Conſtruction *of the foregoing Tables is this:*

Firſt, by the *ſingle* Rule of Three *Direct*, I find what is the *Salary* for *one* Day at 50 *l. per Annum* thus, Conſtruction of the Table for a Common Year.

D.	l.	D.
If 365	50	1

20

365) 1000 (2 *s.*
730

Remainder 270
12

540
270

365) 3240 (8 *d.*
2920

Remainder 320
4

365) 1280 (3 *q.*
1095

Remainder 185

Anſwer 2 *s.* 8 *d.* 3 *q.* $\frac{185}{365}$.

Having thus found that 2 *s.* 8 *d.* 3 *q.* $\frac{185}{365}$ is the *Salary* due for *one* Day, which I place over-againſt the 25th Day of *June*, (becauſe that is the *firſt* Day in the *New* Year according to the *Exciſe*) and *adding* the ſame Sum 365 Times, produces the *Salary* due *every Day* in a *Common* Year, as you ſee it placed in the *Table*. Conſtruction of the Table for a Leap Year.

After the ſame Manner is the *ſecond* Table calculated for the *Salary* due *each* Day in a *Leap* Year; only, inſtead of 365, take 366 Days, and then work as before, and the *Anſwer* will be 2 *s.* 8 *d.* 3 *q.* $\frac{54}{366}$. But

Becauſe *theſe* Tables and the *Conſtruction* thereof are grounded upon *Vulgar Arithmetick*, I will in the next Place ſhew how to find a *Decimal* which ſhall be a *Common Multiplicator*, and which, being *multiplied* by *any Time* reſpectively, ſhall produce the *Salary* due for that Time, either for *Days* or *Weeks*; the *Product* being reduced according to *Part* I *Page* 7.

Common Multiplier how found.

The *Decimal* or *common Multiplier* for a *Day*, &c. is no more than the *Decimal* of 2 *s.* 8 *d.* 3 *q.* $\frac{185}{365}$ for a *Common* Year; and the *Decimal* of 2 *s.* 8 *d.* 3 *q.* $\frac{54}{366}$ will be a *common Multiplier* for a *Day* in the *Leap* Year.

The Operation.

The *Operation* for a *Common* Year ſtands thus:

D. *l.* *D.*
If 365 —— 50 —— 1.

1

365) 50.0000000 (.1369863
365 .....

1350
1095

2550
2190

3600
3285

3150
2920

2300
2190

1100
1095

Remainder 5

By the laſt *Operation* I find that .1369863 is a *common Multiplicator* for a *Gauger*'s *Salary*; which, *multiplied* by *any* Number of *Days*, produceth the *Salary* for that Time.

An Example.

Example. What *Salary* is there due to an Officer on the 29th Day of *Auguſt* in a *Common* Year?

Operation.

Operation. The Operation.

		l.
June 6	*Common Multiplier*	.1369863
July 31	*Number of Days*	66
Aug. 29		
Days 66		8219178
		8219178
	Pounds	9.0410958
		20
	Shillings	0.8219160
		12
		16438320
		8219160
	Pence	9.8629920
		4
	Farthings	3.4519680

Answer 9 *l.* 0 *s.* 9 *d* 3 *q.* .4519680, exactly agreeing with the Table for a *Common* Year.

Note. On *Page* 456, I have furnished you with two Tables of proper *Multiplicators* for *Salaries* at several *Rates per Annum*, the one for a *Common*, and the other for a *Leap* Year. A Note.

But if the Officer be *removed*, &c. out of one *Collection* into another; then when you have *multiplied* your *Number of Days* by the *common Multiplier* .1369863, *multiply* that *Product* by this *Decimal* .9875, and it shall *deduct* you the *Charity* from the *Salary*. How to deduct the Charity.

Example. The *Gross Salary* to the 29th of *August* is found to be (either by the Tables, or by the foregoing Operation) 9.0410958, which I *multiply* by .9875. An Example.

See *the Work*.

Firſt Product	9.0410958
Common Multiplier	9.875
	452054790
	632876706
	723287664
	813698622
Pounds	8.92808210250
	20
Shillings	18.561642050
	12
	112328410
	56164205
Pence	6.7397046
	4
Farthings	2.9588184

Anſwer 8 *l.* 18 *s.* 6 *d.* 2 *q.* .9588184, is the Officer's *neat* Salary on the 29th Day of *Auguſt*.

A Note.

Note. If you would know the Reaſon of this *Decimal* .9875, which will always be a *common Multiplier* in this Caſe, it is the *Decimal* of 19 *s.* 9 *d.* for I *deducted* 3 *d.* from *one* Pound, and the *Remainder* is 19 *s.* 9 *d.* whoſe *Decimal* is a *common Multiplier*, as is ſhewn before, and the *Decimal* of *one* Day's Salary in the *Leap Year* is thus found:

D.	*l.*	*D.*
If 366	50	1.

Work according as I have ſhew'd in *Page* 450, and you will find the *Quotient* to be .13661 2, which is a *common Mulplier* in this Caſe.

An Example.

Example. What *Salary* is there due to an Officer on the 29th Day of *February* in the *Leap* Year?

Caſt your Eye on the Table for a *Leap* Year, and you'll find it to be 34 *l.* 3 *s.* 0 *d.* 2 *q.* .324. But

To

To work it *Decimally*, and *deduct* the *Charity*, the *Operation* ſtands thus: The Operation.

June	6
July	31
Aug.	31
Sept.	30
Oct.	31
Nov.	30
Dec.	31
Jan.	31
Feb.	29
Days	250

Common Multiplier .136612
250
6830600
273224
Pounds .34153
Common Multiplier for Charity .9875
170765
239071
273224
307377
Pounds 33.7260875
20
Shillings 14.52175
12
104350
52175
Pence 6.261
4
Farthings 1.044

33*l.* 14*s.* 6*d.* 1*q.* .044.

Note. The Manner of finding the Number of Days may be more expeditiouſly performed by the *Table* on *Page* 408. A Note.

The further Uſe of theſe *Salary Tables* will appear in Caſe of an Officer's Diſcharge, *&c.* A further Uſe of the Salary Tables.

Example. Suppoſe an Officer has received Salary to *Auguſt* 11, and on the ſecond of *September* following he is diſcharged; I demand what Salary he has to receive for that Time in a *Common* Year? An Example.

Look into the Table for a *Common* Year, and take out the *net* Salary to *Auguſt* 11, (that is, by deducting the *Charity*) and I find it to be 6*l.* 9*s.* 10*d.* 1*q.* .4245952.

Alſo take out the *net* Salary to *September* 2, and it is 9*l.* 9*s.* 4*d.* 2*q.* .4108680.

The *Difference* of theſe two Sums is 2*l.* 19*s.* 6*d.* 0*q.* .9862728, the *net* Salary then due to the Officer; and ſo of any other.

Theſe Tables I calculated for my own private Uſe; but now I make them public for the Good of my Country.

A TABLE for finding the *Number* of *Days* for any Time assigned.

Jan. 31.	*Feb.* $\frac{28}{29}$.	*March* 31.	*April* 30.	*May* 31.	*June* 30.	*July* 31.	*August* 31.	*Sept.* 30.	*Octob.* 31.	*Nov.* 30.	*Dec.* 31.
Feb. 31.	Mar. 28.	Apr. 31.	May 30.	June 31.	July 30.	Aug. 31.	Sept. 31.	Oct. 30.	Nov. 31.	Dec. 30.	Jan. 31.
Mar. 59.	Apr. 59.	May 61.	June 61.	July 61.	Aug. 61.	Sept. 62.	Oct. 61.	Nov. 61.	Dec. 61.	Jan. 61.	Feb. 62.
Apr. 90.	May 89.	June 92.	July 91.	Aug. 92.	Sept. 92.	Oct. 92.	Nov. 92.	Dec. 91.	Jan. 92.	Feb. 92.	Mar. 90.
May 120.	June 120.	July 122.	Aug. 122.	Sept. 123.	Oct. 122.	Nov. 123.	Dec. 122.	Jan. 122.	Feb. 123.	Mar. 120.	Apr. 121.
June 151.	July 150.	Aug. 153.	Sept. 153.	Oct. 153.	Nov. 153.	Dec. 153.	Jan. 153.	Feb. 153.	Mar. 151.	Apr. 151.	May 151.
July 181.	Aug. 181.	Sept. 184.	Oct. 183.	Nov. 184.	Dec. 183.	Jan. 184.	Feb. 184.	Mar. 181.	Apr. 182.	May 181.	June 182.
Aug. 212.	Sept. 212.	Oct. 214.	Nov. 214.	Dec. 214.	Jan. 214.	Feb. 215.	Mar. 212.	Apr. 212.	May 212.	June 212.	July 212.
Sept. 243.	Oct. 242.	Nov. 246.	Dec. 244.	Jan. 245.	Feb. 245.	Mar. 243.	Apr. 243.	May 242.	June 243.	July 242.	Aug. 243.
Oct. 273.	Nov. 273.	Dec. 271.	Jan. 275.	Feb. 276.	Mar. 273.	Apr. 274.	May 273.	June 273.	July 273.	Aug. 273.	Sept. 274.
Nov. 304.	Dec. 303.	Jan. 306.	Feb. 306.	Mar. 304.	Apr. 304.	May 304.	June 304.	July 303.	Aug. 304.	Sept. 304.	Oct. 304.
Dec. 334.	Jan. 334.	Feb. 337.	Mar. 334.	Apr. 335.	May 334.	June 335.	July 334.	Aug. 334.	Sept. 335.	Oct. 334.	Nov. 335.

The Explanation *and* Uſe *of the foregoing* Table.

This Table is to aſſiſt the *Officer* in calculating the *Salary* due to him, to any Day of his *Removal* from one Collection to another, *or* in Caſe of a *Diſcharge*. Uſe of the foregoing Table.

Example 1. Suppoſe an Officer is removed the 8th Day of *November* from *Liverpool* to *Worceſter*, and has received his Salary to *September* the 8th laſt paſt; Example 1.

Look on the *Top* of the *Table* for *September*, and keep your Eye down the ſame Column till you find *November*, and there you will ſee placed 61; which ſhews you that there are 61 *Days* from the 8th of *September* to the 8th of *November*, and ſo of any other Months, and ſame Day of the Month.

Example 2. How many Days are there from the 29th of *April* to the 29th of *Auguſt*? Example 2.

Look on the *Top* for *April*, and guide your Eye down till you come to *Auguſt*, where you will find 122, which are the Days from the 29th of *April* to the 29th of *Auguſt*; then, becauſe 17 wants 12 of 29, *ſubtract* 12 Days from 122, and there *remain* 110 Days, and ſo many Days there are from *April* 29 to *Auguſt* 17 following.

Example 3. I would know how many Days there are from *February* the 14th to *July* the 25th? Example 3.

Look on the *Top* for *February*, and down the ſame Column againſt *July* is 150; (that is, to *July* the 14th) but becauſe I want to know the Number of Days from *February* 14 to *July* 25, which is eleven Days more, 11 Days *added* to 150 make 161, and juſt ſo many Days there are from *February* the 14th to *July* the 25th.

Note, When *Leap* Year happens, and *February* is included in the Days required, *one* Day more muſt be *added* than is in the Table, *February* then having 29 Days. A Note.

N. B. This Table is uſeful in computing the Time for *Servants Wages*, and for all manner of *Salaries*, of what *Time* or *Rate* ſoever.

See likewiſe the *Examples* of the *Salary Table* following.

Proper Multiplicators *for* Salaries *in a* Common *Year.*

Per An.	*Per* Diem.	Value.	*Per* An.	*Per* Diem.	Value.
l.	*Decimals.*	*l.* *s.* *d.*	*l.*	*Decimals*	*l.* *s.* *d.*
5	.013698	0 : 0 : 3 1/4	90	.246575	0 : 4 : 11 1/4
10	.027397	0 : 0 : 6 1/2	100	.273972	0 : 5 : 5 3/4 *ferè*
15	.041051	0 : 0 : 10 *ferè*	120	.328766	0 : 6 : 7 *ferè*
20	.054794	0 : 1 : 1	200	.547974	0 : 10 : 11 1/2
25	.068493	0 : 1 : 4 1/2 *ferè*	300	.821917	0 : 16 : 5 1/4
30	.082191	0 : 1 : 7 3/4	400	1.095948	1 : 1 : 11
40	.109589	0 : 2 : 2 1/4	500	1.369863	1 : 7 : 4 1/2
50	.136986	0 : 2 : 8 3/4	600	1.643834	1 : 12 : 10 1/2
52	.142465	0 : 2 : 10 1/4	700	1.917808	1 : 18 : 4 1/4
60	.164383	0 : 3 : 3 3/4	800	2.191896	2 : 3 : 10
70	.191780	0 : 3 : 10	900	2.465811	2 : 9 : 3 1/2
80	.219178	0 : 4 : 4 1/2	1000	2.739726	2 : 14 : 9 1/2

Proper Multiplicators *for* Salaries *in a* Leap *Year.*

Per An.	*Per* Diem.	Value.	*Per* An.	*Per* Diem.	Value.
l.	*Decimals.*	*l.* *s.* *d.*	*l.*	*Decimals.*	*l.* *s.* *d.*
5	.013661	0 : 0 : 3 1/4	90	.245901	0 : 4 : 11
10	.027322	0 : 0 : 6 1/2	100	.273224	0 : 5 : 5 1/2
15	.040983	0 : 0 : 10 *ferè*	120	.327869	0 : 6 : 6 3/4
20	.054645	0 : 1 : 1	200	.546448	0 : 10 : 11
25	.068306	0 : 1 : 4 1/4	300	.819672	0 : 16 : 4 3/4 *ferè*
30	.081967	0 : 1 : 7 1/2	400	1.092896	1 : 1 : 10 1/4
40	.109289	0 : 2 : 2 1/2 *ferè*	500	1.366119	1 : 7 : 3 3/4
50	.136612	0 : 2 : 8 3/4	600	1.639344	1 : 12 : 10 1/2 *fere*
52	.142076	0 : 2 : 10	700	1.912568	1 : 18 : 3
60	.163934	0 : 3 : 3 1/4	800	2.185792	2 : 3 : 8 1/2
70	.191256	0 : 3 : 9 1/2	900	2.459016	2 : 9 : 2 1/2
80	.218570	0 : 4 : 4 1/2 *ferè*	1000	2.732240	2 : 14 : 7 3/4

The Use *of the two Tables of* Multiplicators *for* Salaries.

Having by the Table on *Page* 454 found the Number of Days required, thoſe Days *multiply'd* by the proper *Factor* will give the *Salary* due.

Example. What Salary is due to an Officer for 40 Days, at 50 *l. per Common* Year? *Anſwer*, 5*l.* 9*s.* 7*d.* 0*q.* .2624.

Example. What Salary is due to a Superviſor for 45 Days, at 90 *l. per Leap* Year? *Anſwer* 11 *l.* 1 *s.* 3*d.* 2*q.* .9202.

CHAP.

CHAP. XXIV.

A LIST *of the* Commissioners *of his Majesty's Royal Revenue of* Excise, *&c. in* England, *and* other Officers *employ'd therein, with their respective Salaries.*

Note, *The* Officers *and* Salaries *in the following List are* always the same, *but the* Officers *by Death and Removals are frequently changing.*

			l.	s.	d.
NINE Commissioners of *Excise*, each 1000 *l. per Annum*, viz.			9000	0	0
William Burton, Esq;	*William Mellish*, Esq;				
John Olebar, Esq;	*Frederick Frankland*, Esq;				
Augustine Earle, Esq;	*William Cayley*, Esq;				
David Papillon, Esq;	*George Lewis Scott*, Esq;				
John Windham Bowyer, Esq;					
Five Commissioners of *Appeals*, each 200 *l. per Annum*			1000	0	0
Sir *More Molyneux*, Knt.	*Edward Montague*, Esq;				
John Paul Yvennet, Esq;	*John Conslad*, Esq;				
Robert Coney, Esq;					
Secretary to the Commissioners of *Excise* 540 *l. per Annum.*	*Bendal Martin*, Esq;		540	0	0
His *first* Clerk, 100 *l. per Annum*	*John Kiddle*, Esq;		100	0	0
His *second* Clerk, 50 *l. per Annum*	*Richard Littleboy*,		50	0	0
Sollicitor to the Commissioners of *Excise*, for himself and Clerk,	*Dudley Baxter*, Esq; *Giles Merryfield*,		610	0	0
Register to the Commissioners of *Excise*, 350 *l. per Annum*	*Thomas Ryder*, Esq;		350	0	0
Three Clerks to *Ditto*, each 80 *l. per Annum*	*Robert Prichard*, *Thomas Heaton*, and *George Blinkensop*,		240	0	0
Register to the Commissioners of *Appeals* 100 *l. per Annum*	*William Milton*, Esq;		100	0	0
Messenger, and Door-keeper, each 40 *l. per Annum*	*Joseph Winkles*, *John Adderley*,		80	0	0
Correspondent to the Commissioners of *Excise*, 220 *l. per Annum*	*Matt. Lowthair*, Esq;		220	0	0
His *first* Clerk 65 *l. per Annum*	*John Stephens*				
His *second* Clerk 56 *l. per Annum*	*William Dobson*		121	0	0
Clerk to the *Securities*, 200 *l. per Ann.*	*John Wardour*, Esq;		200	0	0
Three Assistants to *Ditto*,	the *first* 70 *l. per Annum*	*John Macky*,			
	second and *third* 50 *l.* *per Annum* each	*John Philipson* *John Newbold*,	170	0	0
		Carried forward £	12781	0	0

		£	s.	d.
	Brought forward	12781	0	0
Clerk of the *Diaries*, 80 *l. per Annum*	*William Lister*	80	0	0
Assistant to *Ditto*, 50 *l. per Annum*	*Louis Railane*	50	0	0
Store-keeper, 120 *l. per Annum*	*Grosvenor Bedford*	120	0	0
Clerks to *Ditto*, *first*, at 70 *l. per* Ann. / *second*, at 40 *l. per Ann.*	*John Braken*, *Thomas Bromley*	110	0	0
Packer in the Store-keeper's Office 50 *l. per Annum*	*George Moor*	50	0	0
General-Accomptant of *Excise* 260 *l. per Annum*	*Henry Needler*	260	0	0
Clerk for entering the *Bills of Exchange*, 100 *l. per Annum*	*George Williams*	100	0	0
Accomptant for the *London Distillery*, 150 *l. per Annum*	*Mungo Haldane*	150	0	0
Two Assistants to *Ditto*, 50 *l. per Annum*	*James Webb*, *Francis Flight*	100	0	0
Two Accomptants for the *London Brewery*, *first*, at 120 *l.* / *second*, at 80 *l.*	*Francis Marshall*, *Thomas Jenkins*	200	0	0
Two, as *Excise* Accomptants and for the *Weekly Distribution*, *first*, at 80 *l.* / *second*, at 30 *l.*	*Thomas Young*, *Nath. Simmonds*	110	0	0
Five Accomptants for *Excise*, each 80 *l. per Ann.* and 20 *l. per Ann.* for *Civil List* Tax on *Salaries*, at 6 *d. per l.* to *Thomas Young*	*Francis Marshall*, *Thomas Young*, *Thomas Stephenson*, *Gilstone Bruere*, *Perrot Williams*	420	0	0

Malt and Hops.

General Accomptant for the *said Duties*, 250 *l. per Annum*	*Thomas Smith*	250	0	0
Accomptant for *Malt*, 80 *l. per Annum*	*Josiah Shaw*	80	0	0
Four Assistant-Accomptants for *Malt* each 70 *l. per Annum*	*William Colcock*, *John Morris*, *William Lee*, *Richard Payton*	280	0	0
Accomptant for *Hops* and Coaches, 90 *l. per Annum*	*Charles Miller*	90	0	0
Assistant to the *Excise* and *Malt* General Accomptants, 50 *l. per Annum*	*Benjamin Johnson*	50	0	0

New Duties.

General-Accomptant for the Duties on *Candles*, *Soap*, *Paper*, *Callicoes*, *Gold* and *Silver Wire*, and *Starch*, 200 *l.*	*Henry Forrester*	200	0	0
	Carried forward £	15481	0	0

			l.	s.	d.
		Brought forward	15481	0	0
Two Accomptants for *Candles* in Town and Country, and for the *Bank of Charity*,	*first* at 90*l.* *second* at 20*l.*	*Thomas Radcliffe* *Robert Rayment*	110	0	0
Assistant-Accomptant for Candles *in Town*, 70*l. per Annum*		*Henry Robinson*	70	0	0
Ditto for Soap, Paper, Callicoes, Wire, and Starch, *in Town*, 70*l. per Annum*		*William Williams*	70	0	0
Ditto for *Country* Callicoes, Wire, and Starch, 70*l. per Annum*		*John Whaley*	70	0	0
Ditto for *Country* Soap, 70*l. per Annum*		*Jonathan Green*	70	0	0
Ditto for *Country* Paper, 50*l. per Annum*		*Samuel Marriot*	50	0	0
Clerk of the *Entries* for the said Duties, and for Silver Plate Wrought, 65*l. per Annum*.		*Edward Read*	65	0	0

Hides, Plate, Coffee, Tea, and Chocolate.

General-Accomptant for *the said Duties* 200*l. per Annum*		*Daniel Shipley*	200	0	0
Six Assistants Accomptants for Duty on Hides and Skins, Vellum and Parchment, Silver Plate Wrought *in Town*, Coffee, Tea, and Chocolate, *Town* and *Country*,					
First, 80*l per Annum*		*Perrot Williams*			
Second, 70*l. per Annum*		*William Colcock*			
Third, *Fourth*, *Fifth*, *Sixth*,	50*l. per Annum* each	*Richard Paton* *Robert Rayment* *John Morris* *Christoph. Baldwin*	350	0	0
Comptroller of *Excise*, &c. for himself, *exclusive* of his Clerks, 775*l. per Annum*		*James Butler*, Esq;	775	0	0
His Deputy, 400*l. per Annum*		*James Commins*, Esq;	400	0	0
For Entering *Bills of Exchange*, &c. 120*l. per Annum*		*George Bruere*	120	0	0
On *Excise*, 120*l. per Annum*		*Thomas Cooper*	120	0	0
Three on *Excise*, each 80*l. per Annum*		*Gilbert Ford* *Edward Parsons* *Richard Parsons*	240	0	0
Two on *Malt*, each 60*l. per Annum*		*Forrester Ford* *John Raymond*	120	0	0
		Carried forward £	18311	0	0

			l.	s.	d.
		Brought forward	18311	0	0
On *Candles* and *Victuallers in Town*, 65 *l. per Annum*	*Thomas Turner*	—	65	0	0
On *Hops* and *Candles* in the *Country*, 60 *l. per Annum*	*John Sydenham*	—	60	0	0
Three for Soap, Paper, Callicoes, Wire, and Starch, in *Town* and *Country*, each 60 *l. per Annum*	*Samuel Grandfield*, *George How*, *John Bruere*	—	180	0	0
Two for Hides, and Skins, Vellum, and Parchment, in *Town* and *Country*, each 60 *l. per Annum*	*Nicholas Penfound*, *Giles Keith*	—	120	0	0
For Coffee and Tea, 50 *l. per Annum*	*Robert Ford*	—	50	0	0
For Chocolate, 50 *l. per Annum*	*Thomas Conway*	—	50	0	0
For Silver Plate Wrought, 30 *l. per Annum*	*Charles Harris*	—	30	0	0
Cashier, or Receiver-General of *Excise*, *&c.* for himself and *Clerks*, 1980 *l. per Annum*	Sir *William Milner*	—	1980	0	0
Four *Tellers*, or Deputy Receivers. 1st, 100 *l. per Annum*; 2d, 3d, 4th, each 80 *l. per Annum*	*Daniel Cotterell*, *Thomas Brereton*, *Stephen Montage*, *Thomas Butler*	—	340	0	0
Four Assistants and Notary Public Clerks. 1st, 100 *l. per Annum*; 2d, 60 *l. per Annum*; 3d, 4th, each 40 *l. per Annum*	*Richard Wooton*, *Edward Nickson*, *Benjamin Stow*, *Samuel Jones*	—	240	0	0
Three Bill-Men, each 40 *l. per Annum*	*Edward Fearnley*, *Roger Church*, *Michael Ardouin*	—	120	0	0
Comptroller of *the Cash*, for himself and Clerks, 600 *l. per Annum*	*Robert Andrews*, Esq;	—	600	0	0
His Two Clerks	*Thomas Wallis*, *John Bidgood*				
Auditor of *Excise*, *&c.* for himself and Clerks, 1030 *l. per Annum*	*John Fowle*, Esq;	—	1030	0	0
Auditor of Hides, Coffee, Tea, and Chocolate, for himself and Deputy, *Alexander Lesly*, 300 *l. per Annum*	*Charles Stewart*, Esq;	—	300	0	0
Two General Examiners of the *Excise* and *Malt* Officers *Country* Books, 1st, 150 *l.* 2d, 100 *l. per Ann.*	*Sam. Verlander*, *John Barret*	—	250	0	0
Fourteen Assistants for examining *the said* Books, each 60 *l. per Annum*		—	840	0	0
Assistant to the General-Examiners for Sorting the Books, 30 *l. per Annum*	*Richard Allwood*	—	30	0	0
	Carried forward	£	24596	0	0

		l.	s.	d.
	Brought forward	24596	0	0
Chief-Examiner of *Town* Officers Books for *London-Brewery*, 80 *l.* *per Annum*	*Richard Pike*	80	0	0
Two Assistant-Examiners of *the said* Books, each 60 *l.* *per Annum*	*Thomas Henstride*, *Thomas Finlow*	120	0	0
General Surveyors of Excise, Hides, Plate, Coffee, Tea, and Victuallers, 190 *l.* *per Annum*	*Benjamin Hutchins*			
General Surveyors of Candles, Coffee, &c. 145 *l.* *per Annum*	*Thomas Arnold*			
General Surveyors of Excise, Coffee, Tea, &c. 145 *l.* *per Annum*	*William Colebrook*			
General Surveyors of Soap only, 145 *l.* *per Annum*	*Benjamin Marks*			
General Surveyors of Coffee, Tea, &c. 125 *l.* *per Annum*	*James Goodwin*	750	0	0
Twelve *Surveyors* in the *London* Brewery, each 80 *l.* *per Annum*	*Thomas Rose*, *William Carthcart*, *James Lampriere*, *James Goodwin*, *William Barker*, *John Philips*, *Daniel Neale*, *Thomas Applebury*, *Henry Hartwell*, *William Jobson*, *John Scholey*, *Nathaniel Clark*	960	0	0
In the *London* Brewery: 26 Principal Officers, each 60 *l.* *per Annum*		1560	0	0
In the *London* Brewery: 59 Officers, each 52 *l.* *per Annum*		3068	0	0
In the *London* Brewery: 38 Assistants, each 40 *l.* *per Annum*		1520	0	0

Distillery.

Four General Surveyors of the *Distillery*, each 100 *l.* *per Annum*	*Richard Mould*, *Thomas Evans*, *Matthew Finley*, *Thomas Stephens*	400	0	0
Eleven Surveyors in the *London* Distillery, each 70 *l.* *per Annum*		770	0	0
Fifty-two Officers in *Ditto*, each 52 *l.* *per Annum*		2704	0	0
Twenty Assistants in *Ditto*, each 40 *l.* *per Annum*		800	0	0
Collector of the Duties on *imported* exciseable Liquors, at the Port of *London*, 120 *l.* *per Annum*	*Francis Palmer*	120	0	0
	Carried forward £	37448	0	0

			l.	s.	d.
		Brought forward	37448	0	0
Port-Surveyor for the Diſtillery, Malt, Coffee, Tea, and Chocolate, 90 *l. per Annum*	*John Perry*		90	0	0
Land-Surveyor of *Imported Liquors*, 80 *l. per Annum*	*James Trender*		80	0	0
Twelve Surveyors in the *Brandy*, each 60 *l. per Annum*			720	0	0
In the *Brandy*, *Coffee*, *Tea*, &c.	Fifty-two Officers, each 50 *l. per Annum*		2600	0	0
	Twelve Aſſiſtants, each 40 *l. per Annum*		480	0	0
Two *Port* Gaugers, each 60 *l. per Annum*	*William Nurſe* *John Taylor*		120	0	0
Two *Port* Officers, each 50 *l. per Annum*	*John Smithſon* *James Fryer*		100	0	0
Four *Tide* Surveyors, each 60 *l. per Annum*	*John Parſons* *William Cundell* *Robert Mott* *John Grayham*		240	0	0
Warehouſe-keeper, at 60 *l. per Annum*	*William Price*		60	0	0
Chief Examiner of the *London* Diſtillery Officers Books, 90 *l. per Ann.*	*John Keith*		90	0	0
Three Aſſiſtants	*Firſt* 60 *l. per Annum* *Second* 50 *l. per Annum* *Third* 50 *l. per Annum*		160	0	0
Eighteen *Permit*-Writers, in Exciſe, Coffee, Tea, &c. each 60 *l. per Annum*			1080	0	0
Chief *Examiner* of the *Permits*, 80 *l. per Annum*	*Thomas Gurney*		80	0	0
Five Aſſiſtants to *ditto*, each 60 *l. per Annum*			300	0	0
Eight Surveyors in the *Soap*, *Candles*, and *Plate*, each 70 *l. per Annum*			560	0	0
Fifty-one Officers in *Candles* and *Soap*, each 50 *l. per Annum*			2550	0	0
Thirty-four Aſſiſtants in *Candles* and *Soap*, each 40 *l. per Annum*			1360	0	0
Chief Examiner in the *ſaid* Duties, 80 *l. per Annum*	*George Roberts*		80	0	0
Three Aſſiſtants to *ditto*, each 55 *l. per Annum*			165	0	0
Two *Callicoe*-Surveyors, each 60 *l. per Annum*			120	0	0
Three Officers in *the ſaid* Duties, each 50 *l. per Annum*			150	0	0
Two Officers in *Paper*, each 50 *l. per Annum*			100	0	0
Two Officers in *Wire*, each 50 *l. per Annum*			100	0	0
One Aſſiſtant to *ditto*, at 40 *l. per Annum*			40	0	0
Four Officers in *Starch*, each 52 *l. per Annum*			208	0	0
Six Officers in *Hides*, each 50 *l. per Annum*			300	0	0
One Aſſiſtant in *ditto*, at 40 *l. per Annum*			40	0	0
Twenty-one Officers in *Coffee* and *Tea*, each 50 *l. per Annum*			1050	0	0
Two *Port* Officers in *ditto*, each 50 *l. per Annum*			100	0	0
Surveyor for *Gold* and *Silver Wire*, and *Wrought Plate*, 70 *l. per Ann.*	*John Gale*		70	0	0
Surveyor of the *Hides*, 80 *l. per Annum*	*Stephen Howard*		80	0	0
Examiner of *Town Officers* Books for *Hides*, at 65 *l. per Annum*	*John Marriott*		65	0	0
		Carried forward £	50786	0	0

		l.	s.	d.
Brought forward		50786	0	0

Coffee, Tea, and Chocolate.

Inspector General of the said Duties, 500 *l. per Annum*	*Ja. Geo. Williams*, Esq;	500	0	0
Register of the Chocolate Stamps, 80 *l. per Annum*	*Joseph Carrasa*	80	0	0
Clerk of the *Entries*, 60 *l. per Annum*	*John Babington*	60	0	0
Stamper of *Labels* for the Chocolate, 50 *l. per Annum*	*Henry Newman*	50	0	0
Three Pasters for fixing on the *Labels*, each 50 *l. per Annum*		150	0	0
Two Surveyors of the *Coffee-Rousting* Houses, each 80 *l. per Annum*	*Edward Hall*, *Samuel Gibson*	160	0	0
Two Surveyors of the Warehouses for Coffee and Tea, each 80 *l. p. A.*	*Will. Creswell*, *John Smith*	160	0	0
Six Warehouse-keepers, each 60 *l. per Annum*		360	0	0
Warehouse-keeper of *Condemned Goods* at the *Excise-Office*, 40 *l. per Annum*	*John Coleman*	40	0	0
Six Lockers at the *Tea Warehouses*, each 30 *l. per Annum*		180	0	0
Three Surveyors of the *great Dealers* in Coffee, Tea, &c. each 70 *l. per Annum*	*Thomas Cheater*, *William Watson*, *John Turges*	210	0	0
Twenty-one Officers, each 50 *l. per Annum*		1050	0	0
Six *Permit*-Writers, each 60 *l. per Annum*		360	0	0
One *Ditto*, 50 *l. per Annum*		50	0	0
Three House-keepers at the *Roasting-house*, each 40 *l. per Annum*		120	0	0
Eleven Coffee-Roasters, at *ditto*		440	0	0
Twelve Watermen, each 30 *l. per Annum*		360	0	0
Thirty-six Tidesmen, at 3 *s. per Diem*.				
Six Lockers for the Customs, at 1 *s.* 6 *d. per Diem*.				
Six Warehouse-keepers, each 60 *l. per Annum*		360	0	0
Two *Port*-Officers for the Inland Duties, each 50 *l. per Annum*		100	0	0
Register of the *Victuallers* within the *Weekly Bills* of Mortality, and Accomptant for Impress Money for paying of Incidents, at 80 *l. p. An.*	*John Home*	80	0	0
Six Messengers, each 50 *l. per Annum*		300	0	0
House-keeper, of the *Excise-Office*, 200 *l. per Annum*	Mrs. *Ann Cavendish*	200	0	0
Deputy House-keeper, 120 *l. per Ann.*	Mrs. *Greening*	120	0	0
Two Door-keepers to the Commissioners of Excise.	1st 80 *l. p. An. Mitch. Newman*, 2d 60 *l. p. An. R. Hollingsworth*	140	0	0
Porter of the Excise-Office, at 40 *l. per Annum*	*Samuel Rolls*	40	0	0
Carried forward		£ 56456	0	0

			l.	s.	d.
		Brought forward	56456	0	0
Six Watchmen at the Excise-Office, each 40 *l. per Annum*			240	0	0
Yard-keeper and Fire-maker, 40 *l. per Annum*	*Stephen Adams*		40	0	0
Stable-keeper, 50 *l. per Annum*	*Elizabeth Goodchild*		50	0	0
Rent paid for the *Excise-Office*, 400 *l. per Annum* to	Sir *William Milner*		400	0	0
There are 49 *Collectors* in the several Counties in *England* at a Salary of 120 *l. per Annum* each; and one a *Supernumerary* at 80 *l. per Annum* besides an *Allowance* for *Riding-Charges*.			5960	0	0
And 190 *Supervisors*, who are set over and inspect the several Officers in the Country, at a Salary of 90 *l. per Annum* besides an *Allowance* for *Riding-Charges*.			17100	0	0
☞ *Most* Collectors have a *Clerk* and *Supernumerary* Officer in every Collection.					
There are about 2700 *common Officers* employed in the several Parts of *England*, each at 50 *l. per Annum*			135000	0	0

The Licence and Coach Office.

The *Principal*, at 190 *l. per Annum*	*John Draper*		190	
First Clerk, at 60 *l per Annum*	*John Bibbie*		60	
Second Clerk, at 50 *l. per Annum*			50	
		£	215546	0 0

N. B. *Three-pence* in the *Pound* is deducted for *Charity* from all Officers of Excise, Clerks, *&c.* which are put into their Places by the Commissioners; by which means 14 or 1500 *l.* are raised *every Year*, which Money is applied for the Support of old decayed or disabled Officers of Excise, who have served *upwards of Seven Years*, and they are allowed *per Annum*, viz.

An Accomptant-General	50	0	0
A Collector	25	0	0
A Clerk	20	0	0
A Supervisor	20	0	0
A Gauger	10	0	0

N. B. This *Charity* is remitted to them *Gratis* wherever they are; and they are paid *Half-Yearly*.

☞ * *Here follows an* Appendix, *containing many useful Hints and Observations for the Benefit of the Young Officer.*

APPENDIX.

BY the Act of Parliament *(viz.* 12 *Car.* II. *Chap.* 24.*)* whereby the Duties of Exciſe were firſt granted, it is directed there ſhould be paid the ſeveral Duties, *viz. For every Barrel of Beer or Ale Brewed by the Common Brewer, or any other Perſon, who doth or ſhall ſell or tap out Beer or Ale, publickly or privately,* ſo much *per* Barrel, and ſo proportionably: So that the Duty of Exciſe * becomes a Debt veſted in the Crown, as ſoon as the Operation

* For the better charging and collecting thoſe Duties, *Common Brewers*, &c. liable thereto, were required to do and perform ſeveral Things, and forbid the doing other Things, under ſeveral and reſpective *Penalties* and *Forfeitures*, in the ſaid Act mentioned; and for the more eaſy recovering thoſe *Penalties* and *Forfeitures* the ſaid Act eſtabliſhed a Juriſdiction in Juſtices of the Peace, which at that Time was entirely new. But the Juriſdiction erected by the aforeſaid Act is not limited or confined to the *neareſt* Juſtices; but it has given this Power and Juriſdiction to *any* two or more Juſtices *reſiding near to the Place where Forfeitures ſhall be made, or Offences committed*, &c. and not having aſcertained or expreſſed *what Nearneſs* is thereby meant or intended, it is reaſonable to infer that the adding theſe Words, *reſiding near*, &c. is only to intimate, that the Parties ſhould not unneceſſarily be obliged to take very long Journies.—When any Forfeiture or Offence againſt theſe Laws is made or committed in any Town, not being a County of itſelf, or in any *Corporation* where ſome of the Magiſtrates are Juſtices of the Peace, ſuch Forfeiture or Offence may be heard and determined, either by *Two or more of* the Juſtices of the Peace *of the County*, where ſuch *Town* or *Corporation* is, *or* by Two or more of the Juſtices of ſuch Town or Corporation, *or* by one of the County-Juſtices, and One of the Juſtices of ſuch Town or Corporation, accordingly as the Informer ſhall lay and exhibit his Information; notwithſtanding that in the *Charters* of ſome Corporations there are Clauſes for *excluding all other* Juſtices of the Peace, except *the particular* Juſtices of ſuch Corporation, from acting *in Matters of the Peace* ariſing and happening within ſuch Corporation; Yet for this Purpoſe the Country Juſtices may meet and ſit at and in ſuch Corporations.—Juſtices of the Peace, (ſince the making the aforeſaid Act) it may be obſerved, are to be conſidered as Perſons having *two* Capacities of diſtinct and different Kinds; the one, their Ancient and Original Juriſdiction; and the other, their New Additional Juriſdiction: In all Caſes of ſuch Sort it is a ſtanding Rule, that, if *two* different Capacities concur and center in *one* Perſon, yet thoſe Capacities remain and continue as diſtinct and ſeparate as if they were in two different Perſons.— But no Charter is, or can be ſufficient to over-rule the expreſs Words of an Act of Parliament; and, the aforeſaid Act having expreſly given this Juriſdiction to *any* two or more Juſtices *reſiding near*, no Charter can confine or reſtrain that Juriſdiction to the particular Juſtices of a Corporation, ſo as to exclude the other Juſtices *near* to the reſpective Places where theſe Offences happen to be committed.— And therefore it is at the Election of the Informer or Proſecutor to lay his Information before any Two or more Juſtices, as are not very remote from the Place where ſuch Offence is committed. But, after he hath ſo exhibited his Information before any Two or more Juſtices of the Peace, the hearing and determining ſuch Particular Information will thereby be veſted in, and confined to thoſe particular Juſtices; but if the two Juſtices, before whom ſuch Information is ſo exhibited, upon hearing the Evidence, do happen to differ; and if one be for Convicting, and the other for Acquitting, and both ſhould deſire a third Juſtice to join with them, in order to have a Determination, yet ſuch Third Juſtice cannot regularly ſo join with them, becauſe the Record of that Proceeding being before them Two only, if any other ſhould take upon him to join with them therein, he would then take upon him to judge of and in a Matter which is not regularly before him; And in ſuch Caſe, the Informer or Proſecutor may in Writing or otherwiſe declare, That he will not proceed any further upon ſuch his Information exhibited before ſuch two Juſtices, ſaving to himſelf a Right of exhibiting another Information for that Offence; and then the ſaid Two Juſtices may thereupon make a Record of ſuch his relinquiſhing the farther Proceeding on that Information, which thereby will be diſcharged, and the Caſe will then be as if no Information had been exhibited; and then, if the *three Months* are not expired, the Informer may exhibit the like Information, before Two or Three other Juſtices, or before the firſt Two, and One or Two more joined with them: But ſo long as the Cauſe ſtands upon the Foot of the *firſt* Information, exhibited before Two Juſtices only, no other Juſtices can join with them in giving Judgment thereupon. But

tion of Brewing is over, without any Regard had to the diſpoſing thereof. Likewiſe the Exciſe of Six-pence for every Buſhel of Malt, *which ſhall be made*. The Duties of Exciſe on Candles are charged in the like manner.—For all Candles *made*.——For all Soap *which ſhall be made*. In all which Caſes, the Exciſe accrues and becomes a Debt veſted in the Crown, upon the *making* the ſaid Manufactures. But the Exciſe upon Cyder accrues otherwiſe. for 6*s*. 8*d*. *per* Hogſhead is laid upon Cyder *made and ſold*. So that this does not accrue until the Cyder *is ſold*: But by the Malt-Act a farther Exciſe of 4*s*. *per* Hogſhead is laid on all Cyder *made for Sale*, and this Duty accrues at the Times when the Cyder is made for Sale. The Exciſe on Metheglin and Mead being laid upon theſe Liquors when *ſold*, the Duty does not accrue until they *are ſold*. Duties of Exciſe are laid upon ſeveral other Manufactures; as upon the *printing and painting* Paper to ſerve for Hangings, *&c*. and upon the *printing*, *painting*, *ſtaining or dying* Silks, Callicoes, Linens or Stuffs; which Duties become Debts veſted in the Crown, upon the performing the ſaid Operations, or any of them.—But tho' the ſaid Duties become Debts veſted in the Crown, upon the performing the Operations of Making or Improving as aforeſaid; yet there are diſtant Times allowed for the paying the ſame, which are to be computed from the Times the Mannfacturers make, or ought to have made Entries of the Manufactures ſo made or improved; and which Times for the making ſuch Entries are as follow, *viz*. Common Brewers are once in every Week to make true and particular Entries of all Beer and Ale, which they ſhall brew in that Week; and, if they neglect to make ſuch Weekly Entry, they forfeit Ten Pounds for every ſuch Weekly Neglect. Every Common Brewer, who ſhall not pay and clear off the Exciſe within a Week after he made or ought to have made his Entry, ſhall pay double the Value of the ſaid Duty of Exciſe. If then a Common Brewer begins his Trade on the Second Day of any Month, and breweth one Guile or Brewing on that Day, and another Guile or Brewing on the Fourth Day of that Month, and another on the Sixth Day of that Month, ſuch Brewer ought, on or before the Eighth Day of that Month, to make a true and particular Entry of all he brewed in ſuch Week; and, if he does not, he forfeits Ten Pounds, and an Information † may be laid againſt him

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if ſuch firſt Information is ſo withdrawn, it will not afterwards be of any Uſe *to ſave* the three Months limited for the laying theſe Informations. So far as this Act of the 12 *Car*. II. relates to the Juriſdiction of Juſtices of the Peace in theſe Cauſes, it is, in Fact, a beneficial Law both to the Crown and to the Subject. For, if inſtead of this *ſummary Way* of Proceeding, ſuch Proſecution had been left to the uſual Ways of Proceeding in the Courts of *Weſtminſter*, the Expences of ſuch Proſecutions would very much have leſſened the net Produce of theſe Revenues; and the neceſſary Attendance, Loſs of Time, and Expences in defending ſuch Proſecutions, would in many Caſes have been a far greater Tax than the Duties themſelves, and would ſometimes have been the utter Ruin of many Defendants: and therefore *this* Act of Parliament, ſo far as it relates to the Juriſdiction of Juſtices of the Peace in theſe Caſes, ought to be conſtrued as favourable and as extenſive as in the Caſe of any other beneficial Laws.

† It ſhould be obſerved, that it will not be proper to make the Finders out or Diſcoverers of Practices contrary to the Exciſe Laws Informers, or to lay Information in their own Names, leſt thereby it ſhould happen, that there may be a Want of Evidence to prove the Offence laid in ſuch Information; for the ſame Perſon cannot be both Informer and Witneſs: For which Reaſon theſe Informations ſhould be laid in the Name of the Collector, or of ſome other Perſon not concerned in the diſcovering or finding out the Offence. But if the Collector himſelf happeneth to find out any Practice or Offence, for which an Information is to be laid, by all Means let ſuch Information be laid in the Name of the Surveyor, or of ſome ſuch other Perſon as is not concerned in ſuch Diſcovery, and that is not to be made Uſe of as a Witneſs, to prove

him for it in the Beginning of the Second Week, *viz.* the Week next following the Week he ſo firſt began to brew; and he ought to pay and clear off Duties, accruing

prove the Offence or any Thing relating to it.—No Information is to be proſecuted againſt a Common Brewer, *&c.* for any Miſ-entry, unleſs it be laid before the Juſtices of the Peace, within three Months next after the Offence is committed. But it is to be obſerved, that ſuch *three Months* are not to be *Calendar* or *Almanack Months*, but *Lunar Months* of *four Weeks* to a *Month*, and no more; according to which Computation, *eighty-four Days* make up the *three Months*: And therefore, if Informations of this kind are not laid before Juſtices of the Peace within ſuch *eighty-four Days* next after the committing the Offence, they then come too late.—But there are ſome Offences, which in their Nature are continuing Offences, *viz.* If any Common Brewer, Victualler, or Retailer of Beer, *&c.* hide, conceal, or convey away any Beer, from the Sight and View of the Gauger, they reſpectively forfeit Twenty Shillings, for every Barrel ſo hid, concealed or conveyed away: And if a common Diſtiller or Maker of Low Wines, Spirits or Strong-Waters for Sale, hide or conceal ſuch Low Wines, *&c.* from the Sight and View of the Gauger, he forfeits five Shillings for every Gallon ſo hid, concealed, or conveyed away.— By the Acts relating to the reſpective Duties upon other Liquors, Goods and Manufactures, charged with Duties, there are likewiſe certain Penalties for hiding and concealing; and it is to be obſerved that the Offence of hiding and concealing doth not conſiſt barely in the firſt Act of hiding and concealing, but it is a continuing Offence: for, when any Thing is once hid and concealed, it remains ſo, until it is either produced or diſcovered, or otherwiſe diſpoſed of: and therefore, if a common Brewer on the firſt Day of *March* hides, conceals, or conveys away one or two Barrels of Ale or Beer, and afterwards keeps the ſame hid until the End of *July* following; and if then, and not before, the ſame ſhall be diſcovered and found actually hid and concealed until that Time, and that an Information ſhall then be laid againſt ſuch Brewer, for ſuch hiding and concealing; the Information would be well, as to the Time of laying it, and would be within the three Months, notwithſtanding it would then be above three Months from the firſt hiding, becauſe whatever is once hid and concealed, and is kept and continued ſo hid and concealed, and is afterwards found and diſcovered ſo hid and concealed, is, and remains hid and concealed during all that Time; and, in the Caſe before ſuppoſed, the Brewer did as much hide and conceal ſuch Drink, the very Day when the ſame was found ſo hid and concealed, as he did the firſt Day it was hid and concealed: For hiding and concealing any Thing does not conſiſt barely in the firſt putting or laying ſuch Thing out of Sight, in this or that private Place, for ſuch putting or laying thereof is only the Means made uſe of to hide and conceal it; but the hiding and concealing conſiſteth in the keeping ſuch Thing undiſcovered: and therefore, until ſuch Drink is diſcovered, it is as much hid and concealed, as it was the firſt Day it was put or laid in ſuch private Place; and for which Reaſon ſuch Information, laid within three Months next after ſuch finding and diſcovering ſuch Drink, will be within three Months next after the hiding and concealing thereof.

The Law made 12 *Car.* II. did not expreſsly direct, That the Forfeitures and Offences againſt it ſhould be heard and determined IN the reſpective County or City where the ſame ſhall happen to be committed.—But by another Law, made the 15th of the ſaid King, it is enacted, "*That all Differences, Appeals and Complaints, that ſhall happen and ariſe between Party* "*and Party, in order to the Payment of the Duty of Exciſe, ſhall be heard and determined in the* "*proper County, or in the ſeveral Ridings and Diviſions of* Yorkſhire *and* Lincolnſhire, *where* "*they ſhall ariſe, and not elſewhere.*" So that all Forfeitures and Offences againſt theſe Laws are now to be heard and determined in the proper County where they happen. ☞ Moſt Cities are Counties of themſelves, diſtinct from the County or Counties ſurrounding or adjoining to them: As *London* is a County of itſelf, and is no Part of the County of *Middleſex*; and the like may be obſerved concerning ſeveral other Towns; as the Town of *Pool*, tho' incompaſſed by the County of *Dorſet*, yet it is really a County of itſelf, diſtinct from the County of *Dorſet*: The Towns of *Nottingham*, *Southampton*, *New-Caſtle* upon *Tyne*, *Kingſton upon Hull*, and Town of *Carmarthen*, are each of them Counties of themſelves, diſtinct from the Counties ſurrounding or adjoining to them: The Borough of *Leiceſter* is alſo diſtinct from the reſt of that County. So that Forfeitures and Offences againſt theſe Laws, happening within any of theſe Towns, muſt be heard and determined IN theſe Towns reſpectively; but this is not by reaſon either of their being *Corporations*, or of any excluding Clauſes in any of their *Charters*, but becauſe they are *diſtinct Counties* of themſelves. ☞ Although *ſome* Cities are Counties of themſelves, yet *all* Cities are not ſo; *Weſtminſter* is in, and

Part

accruing in the firſt Week, at or before the End of the Second Week; and, if he does not do it, an Information for double the Value of the Duties, which ſo accrued in the firſt Week, may be laid againſt him in the Beginning of the third Week, computed from his firſt commencing a Brewer. Notwithſtanding Common Brewers are not commonly held to make their Payments ſo ſoon, yet it is plain, That at the End of each Week they ſhould enter all they had brewed in that Week, the Words of the Act being, *That all Common Brewers ſhall once in every Week make true and particular Entries.* So that if a Common Brewer do not in the firſt Week make an Entry of what he brewed in that Week, but delay the doing it till the next Week after, it is plain, that he paſſes over one Week without making any Entry, and therefore he does not in *every* Week make a true Entry, which the Law requires him once in *every* Week to do. Inn-keepers, Victuallers, and Diſtillers are once in every Month to make true and particular Entries of their Liquors; and if they neglect ſo to do, Inn-keepers, for every Neglect, forfeit Five Pounds; and Victuallers, for every Neglect, forfeit Twenty Shillings; and, if in one Month more they do not pay and clear off the Exciſe, they are to pay double Duty. Every Maltſter, or other Perſon making Malt, (except ſuch as compound for the Malt by them made for their own private Uſe only) are Monthly, and every Month, to make true Entries of all the Malt made by them in ſuch Month; and they are to pay and clear off within four Months after they have made, or ought to have made, ſuch Entry.

All

Part of, the County of *Middleſex*; and ſo *Hereford*, *Oxford*, and *Durham*, are in, and are Part of, the reſpective Counties of *Hereford*, *Oxford*, and *Durham*. The City of *Carliſle* is alſo Part of the County of *Cumberland*; and the City of *Rocheſter* is likewiſe Part of the County of *Kent*: But, for your Direction in this Particular, you are to obſerve this Rule, That ſuch Cities or Towns as have a *Sheriff* or *Sheriffs* of their own, ſeparate and diſtinct from the *County-Sheriff*, are Counties of themſelves; but ſuch Cities or Towns as have no Sheriff or Sheriffs of their own, are in and Part of the reſpective Counties where they are ſituate.—It may be worth your further Obſervation, That tho' it may be ſeveral Cities are Counties of themſelves, diſtinct from the reſpective neighbouring Counties; yet particular Places, within the Limits of ſuch Cities, are notwithſtanding Part of ſuch neighbouring Counties; as the Caſtles of *York*, *Norwich*, *Lincoln*, and *Exeter*, are Part of the reſpective Counties of *York*, *Norfolk*, *Lincoln*, and *Devon*; alſo that Part of *Glouceſter* where the Aſſizes for that County are held, is Part of the County of *Glouceſter*, and the like of *Worceſter* and ſome others; and therefore the Juſtices of the Peace of the County of *Devon* may at the Caſtle of *Exeter* hear and determine Offences againſt the Laws of Exciſe happening to have been done in the County of *Devon*; and the like they may do at the Caſtle of *Norwich*, tho' the Offence happen to be committed in the County of *Norfolk*; and the like may be done in other like Caſes. But the County of *York* is divided into three RIDINGS, *viz. Eaſt*, *Weſt*, and *North Ridings*; and the County of *Lincoln* is divided into three DIVISIONS, *viz. Lindſey*, *Keſteven*, and *Holland*; and as the Law has directed, that Differences and Complaints relating to the Duties of Exciſe ſhould be heard and determined in the reſpective *Ridings* and *Diviſions* of the Counties of *York* and *Lincoln*, all ſuch Forfeitures and Offences, committed in any of the ſaid Ridings or Diviſions, ought to be heard and determined accordingly: But, the ſaid Act not mentioning any other Diviſions in any other Counties, what is mentioned about the Diviſions of theſe two particular Counties only, cannot be applied to any other Counties.—And obſerve, that if a common Brewer, Diſtiller or Maltſter, or other Perſon liable to the Duties of Exciſe, ſhould happen to have a Dwelling-Houſe in one County, and a Brew-Houſe, Diſtilling-Houſe, or Malt-Houſe, or the like, in another County; and if at ſuch Brew-Houſe, Diſtilling-Houſe, or Malt-Houſe, any Fact ſhould be done contrary to any Laws of the Exciſe; the Information in ſuch Caſe muſt be laid in the County where ſuch Brew-Houſe, Diſtilling-Houſe, or Malt-Houſe is, before two or more Juſtices of that County; and, when they have granted their Summons upon ſuch Information, ſuch Summons may be ſerved upon the Defendant in the County where he liveth, or in any other County; and if the Defendant, tho' ſerved therewith, doth not appear upon ſuch Summons, Judgment may be given againſt him, as well as if he had lived in the ſame County where ſuch Information is laid. *See* alſo *Page* 253.

All Perſons making Candles within the Bills of Mortality, are *Monthly*, and all Perſons in any other Parts of *Great Britain*, are *every Six Weeks* to make true Entries in Writing of all Candles by them made in ſuch Month and Six Weeks; and thoſe who make Candles within the ſaid Weekly Bills, are once in every Four Weeks, and others in other Parts of *Great Britain*, once in every Six Weeks, after they have made, or ought to have made, ſuch their Entries, are to pay and clear off the Duty. But Compounders for the Duties on Candles made and ſpent in their own Families, are not ſubject to theſe Regulations. The Makers of Soap or Starch are to enter and pay as Makers of Candles All Paper-makers, and Printers and Painters of Paper for Hangings, Printers and Painters of Callicoes, Linens, *&c.* are in every Six Weeks to make their Entries, and are in Six Weeks next after to pay and clear off the Duty. Drawers or Refiners of Silver or Gilt Wire are to make Entries Monthly, and are to pay and clear off the Duty in Six Weeks next after they ſo have made their Entries, or ought to have made them.

☞ *Here follow ſome Obſervations about* Entries *and* Informations ‡.

If, at or before the Beginning of their *Second* Month, Diſtillers, Victuallers, and Inn-keepers, do not make proper Entries of all they have brewed or diſtilled in the *Firſt* Month of their Brewing or Diſtilling, at the Beginning of ſuch *Second* Month, Informations * may be laid againſt them for not making ſuch Entries; and if before or at the Beginning of the *Third* Month they do not clear off and pay all the Exciſe accrued from them in ſuch *Firſt* Month, Informations for double the Value of ſuch Duties, as ſo accrued in ſuch *Firſt* Month, may be laid againſt them in the Beginning of ſuch *Third* Month. All Makers of Candles, Soap, or Starch (living *out of* the Bills of Mortality) or Makers of Paper, or Painters of Paper for Hangings, or Printers or Painters of Callicoes or Linens, if they do not, by *the End* of the *Firſt ſix Weeks*, make true Entries of all they have wrought in ſuch *firſt* Six Weeks, Informations may be

* Juſtices of the Peace, *&c.* are authorized and enjoined, upon any *Complaint* or *Information* of any Forfeiture made, or Offence committed, to ſummon the Party accuſed, and upon his Appearance or Contempt to proceed to an Examination of the Fact: So that the Informer, it is plain, is to make the firſt Step; and he is to make his Complaint unto, or to exhibit his Information before two or more Juſtices. But it is not by any of the *Exciſe* Laws ſaid, that ſuch Complaint or Information muſt be in Writing: So that the Juſtices may, if they will, admit of a verbal Complaint or Information; but then it will be incumbent upon them to make a Record thereof, and of the Time and Place when and where ſuch Complaint was ſo made: And tho' in the Recording of theſe Informations it is mentioned, that the Informer in his proper Perſon exhibited to the Juſtices his Information, *&c.* this doth not make it neceſſary that the Informer ſhould be perſonally preſent; for if the Juſtices are ſatisfied, that the Informer ſo named doth own the Proſecution, that is ſufficient for them to proceed thereon. The Law directs, that, within a Week after laying an Information, Notice be given to the Perſon or Perſons againſt whom ſuch Information ſhall be laid, in Writing, or left at their Dwelling-Houſes; ſo that the Time for ſummoning and giving Notice is not to exceed a Week, next after the laying the Information; which Week is to be computed from the Day when the Information is laid: As ſoon as the Summons is drawn up, which is generally when the Information is laid, and ſigned by the Juſtices, let a Copy be made of it and of the Juſtices Names who have ſigned it, and let the Copy be compared with the original Summons, and be made to agree therewith; then let the Copy be delivered to the Defendant himſelf, or left for him at his Dwelling-Houſe, either with his *Wife* or *Servant*; and, if it be ſo left for him, let the Perſon, with whom the ſame is left, be acquainted with the Intent of it, that they may acquaint the Defendant: And if the Perſon, who left the Summons, meet with the Defendant before the Hearing, he ſhould aſk him, if he received ſuch Summons? or acquaint him that ſuch Summons was left for him as aforeſaid; that the Defendant may have no Pretence to complain of being ſurprized for Want of having had timely Notice.

‡ *See* alſo *Page* 443.

laid againſt them at the Beginning of ſuch *ſecond ſix Weeks*, for the Penalties for not making ſuch Entries; and if at the End of the *ſecond ſix Weeks* they do not pay and clear off the Duties which have accrued in the *firſt Six Weeks*, Informations may at the Beginning of ſuch *third Six Weeks* be laid againſt them for double the Value of ſuch Duties as have accrued in ſuch *firſt Six Weeks*. The aforeſaid Duties being public Revenues, in which, beſides the Crown, the whole Nation is intereſted, due Care ſhould be taken, that they are collected at ſuch Times as they ought to be paid; but this is to be ſo done, that all fair Traders be likewiſe uſed with as much Tenderneſs and Indulgence, as is conſiſtent with the ſecuring the ſaid Duties; for the Laws relating to Forfeitures are not intended for the Profit of Informers, or to injure or ruin the fair Trader, but to ſecure the Duties, and that all of the ſame Trade may pay alike in Proportion to the Manufactures they make or improve; and therefore theſe Laws ſhould be accordingly carried into Practice and Execution. Notwithſtanding what has been ſaid, yet common Brewers, who live out of the *Bills of Mortality*, are often indulged to pay, when Inn-keepers and Victuallers pay, which is conſiſtent with the ſecuring the Duties, becauſe all Coppers and Utenſils uſed in Brewing by them, whether they are the Brewer's own, or do really belong to other Perſons, yet are liable to theſe Duties; and tho' the Utenſils of other Traders are in like manner liable; yet the Coppers, *&c.* uſed by common Brewers, being generally fixed, and of greater Value than the Utenſils uſed by other Traders, their Utenſils are a better Security for the Duties. On the other Hand, Maltſters having a Month to enter, and, by the laſt Act, Four Months to pay, they may owe a large Sum for Exciſe, before the five Months are expired: And, where there is Reaſon to ſuſpect that the Maltſter may go off before the Time of Payment, it may be very adviſeable to examine, whether ſuch Maltſter hath made due and true *monthly* Entries of all the Malt he has made in ſuch reſpective Month; and if he hath not, as few of them do, then, to ſecure the Duty, an Information may, at the Beginning of the Second Month, be laid againſt him, for not making a true Entry of the Malt which he made in the *Firſt* Month; *or*, at the Beginning of the *Third* Month, an Information may be laid againſt him, for not making true monthly Entries of all the Malt by him made in the *two preceding Months:* And if Judgment be thereupon obtained for the Penalties for not making ſuch Entries, ſuch Judgment will go a good Way towards the ſecuring the Duties due from the Maltſter or Maltſters ſo ſuſpected.—Where ſuch Judgments ſo obtained are only made uſe of to ſecure the Duty, ſuch Proſecution cannot be thought hard; but, in Caſes of Hazard, it is the Duty of the Collector to lay ſuch Informations, for not making ſuch true Entries, and to get Judgment thereon: But, unleſs it be in ſuch Caſes, the laying of ſuch Informations for not making ſuch true Entries is not approved of by the Commiſſioners of Exciſe, who do not like the Trader ſhould be made uneaſy by unneceſſary Proſecutions. In the Caſe of ſuch a ſuſpected Maltſter as I have been ſpeaking of, he may have made an Entry of *Part* of what he made in each Month; yet if ſuch Entry do not contain the *Whole* made in ſuch Month or Months, an Information for not making Entry may be laid, notwithſtanding ſuch ſhort Entry; for a ſhort or imperfect Entry is in Law as no Entry at all, it not being a *true* Entry, which is what the Law requires: And whether any Trader omits to make any Entry at all, or whether he makes a ſhort Entry, or falſe Entry, the Information may, in any of the ſaid Caſes, be,

be, That ſuch Trader did not make a *true* Entry; or did not make a true Entry of the Kinds and Quantities, or the like, without particularly mentioning, that ſuch Entry was ſhort, defective, or falſe, in this or that Particular. For though, at the Hearing † of Informations for ſuch defective Entries,

† If the Defendant appears at the Time and Place appointed for determining the Matter in the Information, and doth voluntarily confeſs the Fact or Facts, Judgment muſt then be given upon ſuch his Confeſſion: But if the Defendant doth not appear as by the Summons appointed, or if he appears, and alſo pleads that he is not guilty of the Fact or Facts mentioned in the Information, then it will lie upon the Informer to make good his Information by Proof and Evidence, which muſt always be upon Oath. And therefore if a Witneſs, who is duly ſworn, gives Evidence, that another Perſon told him ſo and ſo, or that he heard another ſay ſo or ſo, whatever it be that ſuch Witneſs ſo repeats, as ſaid by another, goes for nothing; for what is ſo repeated, inſtead of being legal Proof or Evidence, is in Truth nothing but a repeating upon Oath what was ſaid in common Diſcourſe, which might not be true, not being ſpoken upon Oath, and therefore is not to be depended upon: And further, though a Witneſs ſhould upon his Oath repeat what another, when duly ſworn at a former Trial or Hearing, had ſaid upon his Oath, even That is not to be allowed to be given in Evidence, if the Perſon who originally ſaid what is ſo repeated be living; becauſe Evidence of a lower Degree muſt not be admitted, when Evidence of a higher Degree may be had. But, if the original Speaker of what is ſo repeated be living, then he may be produced to give his own Evidence, which is of a higher Degree than a Repetition thereof from any other Perſon.—But a Repetition of what the Defendant himſelf hath been heard to ſay, hath been always admitted and allowed to be given in Evidence, becauſe ſuch Repetition is the beſt Evidence that can be had of what a Defendant ſaith; becauſe he cannot be compelled to give Evidence againſt himſelf.———It is to be obſerved, that it is not neceſſary to prove every Particular in the Information, in the Manner and Circumſtances it happens to be mentioned in ſuch Information, *viz.* In an Information for Hiding and Concealing, it is neceſſary to mention, That the Defendant, fraudulently and with Intent to deceive, did hide and conceal: But it will not be proper or fit that ſuch Witneſs ſhould be required to depoſe, whether ſuch Hiding and Concealing was done fraudulently, and with Intent to deceive; for that would be to require the Witneſs to ſwear to the Intention of the Defendant, which is not the Buſineſs of the Witneſs, or what either Law or Reaſon doth expect from a Witneſs. But the Buſineſs of the Witneſs is to relate the Fact, and the Circumſtances thereof, truly, and from thence the Juſtices are to judge and determine both of the Offence and of the Fraud.——— And it is always to be obſerved, That, if ſufficient Proof be given of a Fact againſt the manifeſt Letter and Meaning of a Law, the Juſtices muſt judge it to have been done fraudulently, unleſs the Defendant makes the contrary to appear by plain and ſufficient Evidence. The ſtale Objection, That what a Witneſs ſays is out of Spite or Malice, ariſing from ſome late Quarrel, *&c.* has frequently little Weight. For tho' ſuch Quarrel may be the Occaſion of ſuch Witneſs's diſcovering what he knows, yet that don't deſtroy the Credit of his Teſtimony; for tho' the Quarrel may indeed provoke him to tell what he would not have told, if ſuch Quarrel had not happened, yet it doth not follow, that the Quarrel doth provoke him to tell more than he knows to be true; and if he doth not, then the Quarrel ought not to invalidate the Credit of his Teſtimony; and that therefore all Evidence, occaſioned by Malice, ought not to be rejected: But if by Malice any are provoked to ſay more than is true, that indeed ought to be rejected. On theſe Informations the Matter in Queſtion generally lies in a narrow Compaſs, and might ſoon be determined, if each Party would ſpeak only to that which is the Fact in Queſtion: But in theſe Caſes the Debating of that which really doth not concern the Matter in Queſtion, often takes up more Time than is ſpent about the Matter itſelf; therefore the Proſecutor and his Witneſſes ſhould avoid ſaying any Thing that may occaſion any Diſcourſe as doth not relate to the main Point, and they ſhould avoid all manner of Reflections; and if any are made on them, they ſhould paſs them by till the Hearing is over: for ſuch as are guilty, eſpecially if old Offenders, and thoſe who are concerned for them, will gladly take Occaſion to ſay a great deal, tho' nothing perhaps to the Purpoſe.——To prevent which, always avoid entering into Diſputes about any Thing that is not the Point in Queſtion; and, tho' you have ſomething to ſay which you may think very ſharp and cutting, yet if it is not directly to the Point, keep it to yourſelf; for the Defendant will anſwer to that more willingly than he will to the Matter itſelf, if that be againſt him.

tries, it will be neceſſary to prove the particular Defects, yet that doth not make it neceſſary to mention ſuch Defects in ſuch Information; becauſe if, upon a general Information, the Informer doth inſiſt upon any particular Defect, he muſt then prove ſuch Defect; and therefore it will not be neceſſary for him to ſet forth ſuch Particulars in his Information.—If, thro' the Negligence of the Collector, the Traders are permitted to be many Months in Arrear, it will not always be neceſſary to lay Informations for the *double* Duty of all that is ſo in Arrear: For if the double Duty of *one Month*, or of *one ſix Weeks*, will be ſufficient to anſwer all that is in Arrear, and the Charges; in ſuch Caſe, it will be ſufficient to lay an Information for the *double* Duty of ſuch *one Month*, or of ſuch *one ſix Weeks* only; and the rather, becauſe in the laying Informations for Duties charged near to the Time of laying ſuch Informations, if great Care is not taken when the Times of Payment are fully expired, it may at ſome Times happen, that ſuch Informations, as to ſome Part of the Duties, may be laid before the Time of Payment may be fully elapſed, which may occaſion the Trouble of a ſpecial Judgment * *That is*, Judgment may be given for the Informer, as to ſo much as ſuch Information is properly laid for in Point of Time; and for the Defendant, as to ſo much as ſuch Information happeneth to be improperly laid for in Point of Time: For the avoiding of which, where the double Duty of *one Month*, or *one ſix Weeks*, will be ſufficient to anſwer the whole Arrear and Charges, to lay the Information for the *double* Duty accrued in ſuch *one Month*, or *one ſix Weeks*, may be ſufficient. The making uſe, in the Manner before mentioned, of a Judgment for not making a true Entry, in order to ſecure Duties really due, or of a Judgment for the double Duty accrued in one Month, or ſix Weeks, in order to ſecure Duties then in Arrear for any former Month or Months, is not only agreeable to the Rules of Law, but of Equity.—No Doubt but to many it may ſeem hard, that, in all Caſes of Arrears, the Informations ſhould be laid for the double Duty, more eſpecially againſt thoſe whoſe being in Arrear is their Misfortune, and not their Fault; I mean ſuch as would pay if they had it: But Informations cannot in theſe Caſes be laid before Juſtices of the Peace for the ſingle Duties; becauſe the Power, which the Juſtices have in theſe Caſes, is derived and depends upon the Words in the ſaid Act of 12 *Car.* II. and therefore their Power, and the Manner of proceeding before them, muſt be guided and governed thereby. And as the Juſtices are not impowered to hear and determine Complaints or Informations, touching or concerning the *ſingle* Duties of Exciſe, or touching

* There being no Directions given by any Law *how long* before the Time of Hearing Notice ſhall be given; nor how ſoon after the laying the Information the Hearing and Determination may be: For which Reaſon, where the End and Deſign of the Proſecution is only to reform and correct irregular Practices, the Proceedings may be more deliberate, that the Perſons ſo proſecuted may have no Pretence to complain of their having not had convenient Time to prepare for their Defence: But where the End and Deſign of the Proſecution is only to ſecure Money actually due to the Crown, which is in Danger of being loſt, if the Proſecution be any way delay'd; there the Proceedings ought to be with as much Expedition as the Law will admit.—However, it will not be convenient to hurry on even Proſecutions for Arrears; but, when Perſons are ſlow and dilatory in paying their Duties, Informations may be laid in Time, ſo that timely Notice may be given, and convenient Time may be allowed for the Hearing thereof, which will be much better than ſuch haſty Proceedings; but in Caſes of abſolute Neceſſity more ſpeedy Proceedings may be juſtified.

touching and concerning the *Arrears* thereof; but their Power being, by the expreſs Words of the ſaid Act, to hear and determine *Forfeitures* and *Offences*; and the ſaid *Forfeitures* and *Offences* being the Subject Matter of their Power and Juriſdiction, they cannot receive or hear Informations for the *ſingle* Duties only: So that, when Informations are to be laid for not paying ſuch Duties, ſuch Informations muſt be laid ſo, as to bring the Cauſe within the Power and Juriſdiction of the Juſtices, and conſequently muſt be laid for the *Forfeiture* in ſuch Caſe, that is, for *double* the Value of the Duties; there being no other Method for the recovering before Juſtices of the Peace ſuch Duties in Arrear, as aforeſaid. And as theſe Informations before the Juſtices muſt be for *double* the Value of the Duties, ſo in Caſes where the Facts mentioned in ſuch Informations are either confeſſed by the Defendants, or fully proved, the Judgments muſt alſo be for *double* the Value of the ſaid Duties ſo proved to be in Arrear; and the Warrants in ſuch Caſes muſt likewiſe be for the *double* Duty, becauſe, if they ſhould be otherwiſe, they would not be Legal Warrants, as not being purſuant to ſuch Judgments, nor to the ſaid Act. Neither can the Juſtices of the Peace regularly mitigate † the Forfeitures of *double* Duty: For the Clauſe whereby they are impowered to mitigate Penalties and Forfeitures is not general and unlimited, but is reſtrained by the Words in that Clauſe, *viz.* "So as by ſuch Miti-"gation the Forfeiture be not made leſs than double the Value of the Duty "of Exciſe, which ſhould or ought to have been paid." And therefore the Forfeiture being for no more than barely the *double* Duty, it cannot be mitigated by Virtue of the before mentioned Clauſe; and there being no

† In the making *Mitigations*, the Conſequence of being *too favourable* ſhould be well conſidered; for, if the Offender is ſuffered to be a Gainer by his Fraud, he will thereby be encouraged to go on, and others, ſeeing his Succeſs, will think themſelves obliged to follow his Example. If there be ſeveral of a Trade and one with-holds Part of what he ought to pay, whilſt the other honeſtly pays according to the Law: if he who is detected doth not after all pay in Proportion to him who trades fairly, he who pays but Part only, may afford to under-ſell the other; and if ſuch other finds that his Trade declines thereby, he, for fear of loſing his Trade and Cuſtomers, and by a wrong Application of the Maxim of Self-Preſervation, may be induced to think himſelf obliged to endeavour by Fraud to defend againſt Fraud, and to repair his particular Loſſes out of the Revenue of the Public. Many are the Inſinuations uſed to move Juſtices to Lenity in theſe Caſes; but amongſt others it is urged, That the Fraud of *one* particular Offender can have no conſiderable Influence on the general Produce of any Branch of the Revenue, and that therefore the Juſtices, without Prejudice to the Public, may exerciſe Lenity in that particular Inſtance: Yet, in Anſwer, it is to be conſidered, That tho' ſuch Offender may be the *only* Offender at that Time before thoſe particular Juſtices, yet there may be many others of the like Nature before other Juſtices in other Places, at that very Time, who with as much Reaſon and Juſtice may urge the ſame Inſinuation, which may be uſed on the Behalf of every ſingle Offender, until it be extended ſo far as to deſtroy the Force and Effect of the Exciſe Laws. But ſuppoſing that he in Fact is the only Offender in that Kind, the Honeſty of others ought not to extenuate his Knavery, but he ought to be acquainted, That if all others are honeſt, and he the only Offender, his Puniſhment ought to be the more exemplary.—The *Poverty* of an Offender is likewiſe frequently urged to the Juſtices to excite their Lenity, and that the Public is better able to bear the Loſs occaſioned by a *poor* Man's Fraud, than he is to make Satisfaction. The Poverty of an Offender (to be ſure) ought to be conſidered, but then the Poverty and Impoveriſhing of *many others* who are *as poor*, tho' more honeſt, ought to be conſidered, more than the Poverty of *any One*; and the letting one Offender eſcape, without due Puniſhment, may and will in many Caſes be the Occaſion not only of the Impoveriſhing, but alſo of the Undoing of many, ſuch as are both poor and honeſt, becauſe an Offender who pays only *Part*, whilſt others pay the *Whole* that is due, can and will *under ſell* ſuch as pay the *Whole*, and thereby may and will undermine the fair Traders, and rob them of the Means of getting their Livelihood.

other Clauſe whereby the Juſtices are impowered to mitigate, they muſt not in ſuch Caſe, either in the Body of their Judgment or Warrant, expreſs or mention any ſuch Mitigation, leſt thereby the Proceedings be made erroneous. But, by Indorſements on theſe Warrants, the Juſtices may direct and appoint what particular Sum ſhall be levied and taken for the Charges in each particular Caſe, and may direct thoſe who are to execute ſuch Warrants, not to take more than ſuch Sum and the ſingle Duties; for theſe Warrants * muſt be always executed with as much Civility and Eaſe to the Perſons concerned, as may be, taking only the ſingle Duty and reaſonble Charges, which the Collectors are to endeavour to get the Juſtices to ſettle and apportion. And the Collectors are injoined not to inſiſt upon double Duty, or on the Penalties for Non-Entry in any Caſe, unleſs they firſt give the Commiſſioners an Account, and are by them directed ſo to do. It will be beſt, in all Caſes of the Kind I have been ſpeaking of, to mention the true Quantities and Qualities of the Liquors or other Manufactures, for which the Duties are unpaid: But if it ſo happen that the true Quantities cannot certainly be known, (as ſometimes they cannot) when ſuch Information is to be prepared, then it is adviſeable to mention rather *more* than leſs than the true Quantity; becauſe if an Information be laid for *leſs* than the true Quantity, the Judgment cannot be for *more* than is mentioned in the Information, tho' *more* ſhould be fully proved; but if the Information ſhould be laid for *more* than is proved, yet ſuch Information will be good and effectual *for ſo much* as is proved; and the Juſtices accordingly ought to give Judgment for the Informer, in Proportion to ſo much as is ſo proved, and ought to acquit the Defendant of the Reſidue, which is not proved to their Satisfaction.

☞ *I ſhall now give ſome Inſight into the Nature of* Appeals.

The Officer is to obſerve, that an Appeal, is a Reſort from a Sentence already given by one Judicature to a ſuperior Judicature, to the Intent that all

* By the Act of 12 *Car.* II. the Juſtices of the Peace are impowered to grant Warrants for levying ſuch Penalties and Forfeitures; the Words are, "*And for Want of ſufficient* "*Diſtreſs to impriſon the Party offending till Satisfaction be made.*" Nevertheleſs, before any Warrant can be regularly made out to arreſt and impriſon the Perſon of the Defendant, there muſt firſt be a Warrant to ſeize the Utenſils, &c. and a Return made thereof, which Method ought to be ſtrictly obſerved. For, the Law being in all Caſes very tender of depriving Men of their Liberties, all poſſible Means ſhould be uſed to levy the Money on the Goods, &c. before the Perſon of the Defendant be impriſoned. Nevertheleſs if a Warrant to ſeize the Utenſils and Goods be made and delivered to an Officer to be executed; and on making diligent Search for ſuch Utenſils and Goods the Officer cannot find ſufficient to anſwer the Sum mentioned in ſuch Warrant; and if the Officer make a Return, that, having made diligent Search, he cannot find any Utenſils or Goods whereon to levy the ſaid Sum mentioned in ſuch Warrant: *or* that he hath ſeized ſome Utenſils or Goods which he has ſold and diſpoſed of, and that the Money thereby ariſing amounteth but to ſuch a Sum, being leſs than the Sum mentioned in ſuch Warrant; then, a Warrant may be made to arreſt and impriſon the Perſon of the Defendant; but then Care ſhould be taken that there is a *Duplicate* made of ſuch Warrant, becauſe, after the Officer has ſo arreſted the Defendant, he muſt conduct him to the Priſon next to the Place where he was arreſted, and deliver him into the Hands of the Keeper of ſuch Priſon, who cannot regularly receive him without a Warrant; and it will not be ſafe for the Officer to part with the Warrant whereby he arreſted the Defendant, becauſe he ought to keep that for his Juſtification; and that he may do ſo, and that the Keeper of the Priſon may alſo have a Warrant for his Juſtification, it will be neceſſary that there ſhould be a *Duplicate* of ſuch Warrant, that the Officer may keep one, and the Keeper of ſuch Priſon may have the other, for their reſpective Juſtifications.

all that was heard by the Judicature who paſſed ſuch Sentence, may be heard and inquired into again by the Judicature, to which ſuch Appeal is made: And, in ſuch Caſes, the ſuperior Court ſo appealed to doth always re-hear and inquire into the Fact, as fully as the Court did who firſt paſſed Sentence; which being done, the ſuperior Court doth either affirm the firſt Sentence, or in the Stead thereof doth paſs ſuch other Sentence as ſeemeth juſt, and according to the Merits of the Fact then before ſuch ſuperior Judicature. And therefore the Juſtices at the Quarter-Seſſions have full Power to re-hear and re-examine all the Witneſſes; and, being fully informed of the Truth and Merits of the Matter in queſtion, they may either reverſe the firſt Judgment given by the particular Juſtices, or may affirm the ſame either in *Part* or in the *Whole*, or may in the Stead thereof make ſuch other Judgment as to them ſeemeth juſt. And tho' the Juſtices, who gave the firſt Judgment, did not make any Mitigation, yet the Juſtices at the Quarter Seſſions may (if they ſee Cauſe) make ſuch a Mitigation as ſeemeth juſt to them; for by the Appeal the whole Matter is before them, and the Juſtices at the Quarter-Seſſions are Judges of the Mitigation as well as of the Penalty; and in one Inſtance their Power exceeds the Power of the Juſtices who gave the firſt Judgment: For the Juſtices cannot allow or adjudge any Coſts or Charges beyond the Penalty; but the Juſtices at the Quarter-Seſſions may adjudge and allow Coſts and Charges even beyond the Penalty, if they ſee Cauſe for ſo doing. It is to be obſerved, no other Witneſſes ought to be examined upon Hearing Appeals, but ſuch only as were examined on the Hearing before the Juſtices who gave the firſt Judgment; for the Hearing upon an Appeal is not an original Hearing, but is only a Reſort or Appeal to another Judicature, in the ſame Cauſe and under the ſame Circumſtances as it was at firſt heard. And thereupon the Judicature ſo appealed to is to give ſuch Judgment as ſhould have been given on the firſt Hearing, ſo that, if the firſt Judgment was wrong, the Judicature appealed to ought, inſtead thereof, to give ſuch Judgment as is right. The Gentlemen in the Commiſſion of the Peace have a great Truſt repoſed in them by theſe Laws, and may be infinitely ſerviceable both to their King and Country, if they proceed upon the Merits of the Facts and Offences brought before them on theſe Proſecutions; but if they chuſe on the other Hand to proceed on nice Exceptions, and to reverſe and quaſh Judgments legally given on full Hearing of all Parties, the Conſequence will be, that all Offenders will be proſecuted in the Courts of *Weſtminſter*, as by the Exciſe Laws they may be, and then the Charges of defending ſuch Proſecutions will amount to a great deal more than the Money recovered on Judgments given by the Juſtices. And further, in every Inſtance where an Offender really guilty is ſcreened by Niceties and Subtilties from the Puniſhment due to him, for contriving to avoid paying the juſt Duties, it is not only Injuſtice to the Proſecutor in ſuch Caſe, but it is an Injury to all others who pay the like Duties as ſuch Defendant ought to pay. And it may be further obſerved, that perhaps it may be a Queſtion, whether curious Inquiring into the Certainty or Uncertainty of Expreſſions will not occaſion more Uncertainty than it will prevent.

☞ *Some Obſervations relating to the making of* Seizures.

It is to be underſtood, that beſides a verbal refuſing or telling the Officer that he ſhall not enter, or that he ſhall not take an Account, there may be an actual refuſing; as where the Doors, *&c.* are ſhut, lock'd or made faſt, and the Trader doth not upon Demand open them, or cauſe them to be opened; for tho' this is not a verbal, yet it is an actual refuſing to permit the Officer to enter. Or if a Trader has ſo contrived the Utenſils and Places uſed for carrying on his Buſineſs, that the Officer cannot take an Account of the Manufactures there found; and if, upon a fair demand made by the Officer, he refuſeth to make it practicable for the Officer to take an Account of the Goods there found, it likewiſe is an actual refuſing to permit the Officer to take an Account; for, when a Law requires and enjoins any thing to be done, the neceſſary means for the doing thereof, and without which ſuch Thing cannot be done, are implied, tho' perhaps not expreſſed in ſuch Law; the Intent of the Law being, that all ſuch Perſons as are liable to the Exciſe Duties ſhould be obliged to order and diſpoſe their Houſes, Places, and Practices ſo, and in ſuch manner, that theſe Laws may be complied with, and may be put in Execution, and that it may be poſſible and practicable for the Officers to perform their reſpective Duties; and if the reſpective Perſons liable to theſe Duties, after Demand made, refuſe ſo to do, they in ſuch Caſes may be proſecuted for the before mentioned Penalties. But every Difficulty which an Officer may happen to meet with won't be a juſt Cauſe for a Proſecution; for it will happen that ſome Houſes and Places cannot be ſo eaſily ſurvey'd as ſome others; and therefore the Officers muſt be content at ſome Places to take more Pains and be at more Trouble than will be neceſſary at others, and muſt not in all ſuch Caſes immediately lay Informations; for as the Traders liable to theſe Duties muſt not by Deſign, or Want of due Care and Foreſight, put unneceſſary Difficulties upon the Officer; ſo the Traders liable to theſe Duties muſt not be proſecuted on theſe Clauſes, for and upon Account of every Difficulty which an Officer may meet with; but if their Houſes and Places are ſo contrived that it is impracticable for Officers there to take true Gauges and Accounts, and if upon Requeſt and Demand they will not alter them, they may then be proſecuted.

It is worth the young Officer's Obſervation, that foreign Liquors which have been unduly landed, and are found near the Sea-coaſt, in the Poſſeſſion or Cuſtody of any Perſon who doth not give a ſatisfactory Account how he came by them; ſuch finding in the Cuſtody of ſuch Perſon is an Evidence that he is the Proprietor thereof; and in ſuch Caſe an Information may be laid againſt him as the Proprietor thereof. But Informations on Seizures muſt not be in the Collector's Name, unleſs he himſelf actually makes the Seizure.* And, if two or more Perſons make a Seizure, the Information may be in the Name of one of them only, and then the other or others may be Witneſſes to prove ſuch Seizure. And what has been ſeized by one Officer may be a ſecond Time ſeized by another Officer; and in ſuch Caſe the Information may be laid in the Name of him who made ſuch ſecond Seizure, and he who made the firſt Seizure may in ſuch Caſe be a Witneſs on ſuch Information: And therefore when an Officer has made a Seizure of any foreign Liquor unduly put on Shore, it will be beſt to get the Collector to make a ſecond Seizure thereof, that the Information may be laid in his Name, and that he who made the firſt Seizure may be a Witneſs.

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* See the Inſtructions for making Seizures, on *Pages* 226 *and* 376.

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☞ *These* Further *Hints concerning* Informations, *&c. I apprehend may be useful to all young Officers.*

When Informations are lodged againſt Printers of *Callicoes* and *Linens*, it is neceſſary to mention that the Callicoes and Linens were *printed*, *painted*, *ſtained*, and *dyed*; yet ſuch mentioning doth not make it neceſſary to prove, that *all* thoſe Operations were performed; for, the Law having laid the Duty upon *any one* of thoſe Operations, the Duty becomes a Debt, veſted in the Crown on the performing of *any of them*; and if Proof be made of *any one* of the ſaid Operations, the Information will be good. Silks for *Handkerchiefs* being printed paying a different Duty from other Silks, in Informations it will be proper to diſtinguiſh whether they are Silks for *Handkerchiefs*, or other Silks. When common Brewers, Innkeepers or Victuallers, for uſing in great Towns, conſiſting of ſeveral Pariſhes, Veſſels or Store-houſes, *&c.* without due Notice, have Informations laid againſt them, it is neceſſary to mention in what particular Pariſh in ſuch Town they were ſo uſed, becauſe the Poor of that Pariſh are intitled to one Third Part. But in other Caſes it will be ſufficient to alledge the Offence to have been committed at ſuch Town, without mentioning the Pariſh in ſuch Town, unleſs it be where a Town happens to be Part in one County and Part in another; then it will be neceſſary to diſtinguiſh the Pariſh or Part of the Town where the Offence was committed, that the Information may be laid in the proper County.

When Manufactures liable to the Duties of Exciſe are concealed to evade the Duties, it is uſually done in Places which the Offender has given no Notice of: All ſuch Offenders may be proſecuted either for *not giving due Notice* of ſuch Places, or for ſuch *hiding and concealing*; and as the Informer may proceed for either of the ſaid Penalties, ſo he may lay Informations for both; but if in Fact an Offender hath hid and concealed but *one* Parcel or Quantity, there muſt not in ſuch Caſe be Judgments againſt him for *both* Penalties, becauſe none ought to be twice puniſhed for the ſame Offence. In all ſuch Caſes, therefore, if Judgment be given againſt him on one ſuch Information, the other Information muſt be withdrawn, or the Defendant acquitted thereof; the laying two or more Informations enables the Informer, at the Hearing, to proceed upon ſuch one of them as he finds can be maintained by the Evidence which ſhall be then produced: And it is requiſite, if the Proof then produced be ſufficient to maintain the Information, for the greateſt Penalty, that the Informer then proceed upon that, and, if he obtaineth Judgment, the other muſt be dropt. But if at the Hearing it appears that Notice hath been given of ſuch Room or Place, the Defendant upon that Information muſt be acquitted; but tho' the Offender is ſo acquitted for not giving Notice, yet he may be convicted on an Information for hiding and concealing, and therefore the Informer may in ſuch Caſe proceed for hiding and concealing, becauſe it is poſſible ſo to hide and conceal even in a Room or Place of which Notice has been given as may ſubject the Offender to the Penalty for hiding and concealing. Maltſters, for not giving Notice of a Room or Place uſed for the making or keeping Malt, are liable to a Penalty of Fifty Pounds, and for hiding and concealing Malt the Penalty is *Ten* Shillings *per* Buſhel; if therefore the Quantity found concealed doth exceed One Hundred Buſhels, the Penalty for concealing will, in ſuch Caſe, be higher than the Penalty for

for not giving Notice; and it will be adviſeable to proceed for ſuch *conceal-ing*, rather than for *not giving Notice*. Becauſe there is not any expreſs Clauſe for the Penalty for not giving Notice of Cellars or Places for keeping of Mead, the proper Way to proceed againſt Makers of Mead will be for the Penalty for *hiding*.

If Low Wines, Spirits, and Strong-Waters are hid and concealed, the Penalty is 5*s. per* Gallon, of which no Part is given to the Informer; and, the Law having appointed no Diſtribution of the ſaid Penalty, the whole belongs to the King: The Informations, therefore, in this Caſe muſt be on the Behalf of the Crown only, and not on the Behalf of the Informer. Makers of Candles, Soap, Paper and Starch, Printers and Painters of Paper for Hangings, and Printers, Painters, *&c.* of Silks, Callicoes, Linens or Stuffs, likewiſe Planters and Owners of Hops, hiding and concealing any of the ſaid Manufactures or Commodities, or the Materials for making the ſaid reſpective Manufactures, the Penalty is *Twenty* Pounds in each Caſe; for which Reaſons in Informations againſt any of them, for hiding and concealing, it is not neceſſary to mention any certain Quantity; for it will be ſufficient to mention that the Defendant did hide and conceal either Candles, Soap, Paper, *&c.* or Materials for making thereof. The Penalty is *Fifteen* Pounds againſt Makers of Vinegar, Sweets, Metheglin, or Mead, or againſt Retailers of Cyder, for not permitting an Officer to enter or gauge, *&c.* If Makers of Candles, Soap, Paper, or Printers of Callicoes, Linens *&c.* or Makers of Starch refuſe to permit Officers to enter to take an Account; for ſuch refuſing they may be proſecuted for the Penalties either of Twenty Pounds or Fifteen Pounds, as the Informer ſhall think fit to lay it in his Information. The Officer is to obſerve, that unleſs Silks, Callicoes, and Linens be the proper Goods of the Printer, they cannot be ſeized by Virtue of a Warrant, or be made liable to any Penalties recovered againſt ſuch Printer.—Warrants made by Juſtices of the Peace being uſually directed to Conſtables and Headboroughs, *&c.* it hath been uſual ſo to direct Warrants in *Exciſe* Cauſes; but it is much more proper that *theſe* Warrants ſhould be directed to the Officers of *Exciſe*, becauſe they give Security to the Crown, that they will faithfully pay and account for all Money which they ſhall receive by Virtue of ſuch Warrants or otherways; and ſuch Officers, being under the Direction of, and frequently attending upon the Collectors, to whom ſuch Money when levied ought to be paid, the *Exciſe* Officers can pay the Money to the Collectors more conveniently than the Conſtables can: But it is proper in all ſuch Warrants to inſert a Clauſe requiring all Conſtables, *&c.* to aſſiſt the Officers in the Executing ſuch Warrants, that, in Caſe the Officers in the Executing thereof do meet with any Oppoſition or Reſiſtance, they may then by Virtue of ſuch Clauſe require the Conſtables, *&c.* to aſſiſt them therein, ſo far as to ſee the Peace kept, and the Law duly complied with. Theſe Warrants may bear Date the ſame Day when the Judgment is given, or any Day after, (not being *Sunday*.) And where there is no Danger of the Defendant's carrying off his Goods and Effects, it will be adviſeable for the Officer before he executes the Warrant to demand the Money of the Defendant, and to try by fair Means to prevail with him to pay the Money; but, if Perſuaſion won't do, the Officer may then execute the Warrant, but ſhould always do it in the beſt and civileſt Manner that may be. When the

the Officer has arreſted ſuch Defendant, and delivered him to the Gaoler or Keeper, it will be proper for ſuch Officer, on the Back of the Warrant he deſigns to keep, to take a Receipt under the Hand of ſuch Gaoler or Keeper, acknowledging his receiving ſuch Priſoner.—A Warrant to ſeize the Body, for want of ſufficient Diſtreſs, can't be granted until a Return is made to the Warrant for ſeizing the Goods; and ſuch Return can't be made until the Utenſils or Goods ſeized are ſold, becauſe, until they are actually ſold, it can't be certainly known how much they can be ſold for; and the Utenſils and Goods can't be ſold until full fourteen Days after the ſeizing thereof.

Tho' we are ſenſible that the various Forms of Informations, Summonſes, Judgments, *and* Warrants *would make a Volume of themſelves; yet we apprehend the following* authentic *Proceedings againſt a common Brewer will be very ſatisfactory to the inquiſitive young Officer.*

The Form of an Information *for Arrears againſt a common Brewer, for the double Duty of Strong Beer and Ale, and of Small Beer.*

Norfolk, ſſ. BE it remembered, That this Twentieth Day of *April*, in the Twelfth Year of the Reign of our Sovereign Lord King *GEORGE* that now is, at *Thetford* in the ſaid County of *Norfolk*, *John Downer*, Gent. in his proper Perſon, as well for his ſaid Majeſty as for himſelf, exhibited to us *Brian Aiſley* and *Oliver Dodſon*, Eſqrs. two of his ſaid Majeſty's Juſtices of the Peace for the ſaid County, reſiding near to the Place where the Offence herein after mentioned was made, a Complaint and Information; and thereby informeth us, That at ſeveral Times between the Firſt Day of *February*, and the Sixteenth Day of *March*, both now laſt paſt, at *Thetford* aforeſaid, one *Abel Swall*, at a common Brewhouſe then and there belonging to, and uſed by him, did brew ſeveral and reſpective Quantities of Beer and Ale; that is to ſay, Thirty Barrels of Strong Beer and Strong Ale, each above Six Shillings the Barrel; and Sixty Barrels of Small Beer, not exceeding Six Shillings the Barrel; and that the ſaid *Abel Swall*, at and during the reſpective Time and Times of brewing the ſaid Beer and Ale, and of every Part thereof, having been, and yet being there a common Brewer, there did accrue and become due to his ſaid Majeſty from the ſaid *Abel Swall*, for the ſaid Beer and Ale ſo by him brewed as aforeſaid, certain Rates, Duties, and Sums of Money, amounting in the whole to Ten Pounds and Five Shillings, of lawful *Engliſh* Money; which ſaid Rates, Duties, and Sums of Money ſo accrued, or any Part thereof, the ſaid *Abel Swall* hath not paid or cleared off, to, or for the Uſe of his ſaid Majeſty, within a Week next after he, according to the Form of the Statute in ſuch Caſe made and provided, did make, or ought to have made, his Entry or Entries of the ſaid Beer and Ale ſo by him there brewed as aforeſaid, or of any Part thereof, or at any Time ſince; but the ſame yet remains wholly due and unpaid, contrary to the Form of the ſaid Statute in ſuch Caſe made and provided: Whereby he hath forfeited double the Value of the ſaid Rates, Duties, and Sums of Money remaining unpaid,

The Time and Place of laying the Information recorded.

The Information.

The Offence.

The Forfeiture.

unpaid, as aforeſaid; that is to ſay, Twenty Pounds and Ten Shillings of like Money. And thereupon the ſaid *John Downer* as well humbly prays the Judgment of us the ſaid Juſtices in the Premiſes, as that he may have one Fourth Part of the ſaid Forfeitures, according to the Form of the Statute in ſuch Caſe made; and that the ſaid *Abel Swall* may be ſummoned to anſwer the ſaid Premiſes, and to make Defence before us the ſaid Juſtices.

A Summons *on the foregoing* Information.

To Mr. Abel Swall, *common Brewer.*

Norfolk, ſſ. WE *Brian Aiſley* and *Oliver Dodſon*, two of his Majeſty's Juſtices of the Peace for the ſaid County, do hereby give you Notice, That *John Downer*, Gent. hath exhibited before us an Information againſt you for the Sum of Twenty Pounds and Ten Shillings, being double the Value of certain Duties of Exciſe of Beer and Ale by you brewed, the ſingle Duties whereof you (as he alledgeth) ought long ſince to have paid, but have neglected ſo to do: You are therefore hereby required to appear before us, at the Houſe of *Thomas Thompſon*, being the Sign of the *Angel*, an Inn and Public Houſe in *Thetford*, in the ſaid County of *Norfolk*, on the Second Day of *May* now next enſuing, at Ten of the Clock in the Forenoon of the ſame Day, then and there to anſwer the ſaid Information, and to make Defence thereto. But, if you neglect ſo to do, we ſhall proceed as if you was perſonally preſent.

And we do farther authorize and require Mr. *Anthony Gilder*, Officer of Exciſe, or any other Officer of Exciſe, to ſerve this our *Summons*, and to attend us at the Time and Place beforementioned, then and there to make a Return to us the ſaid Juſtices. *Given under our Hands at* Thetford, *this Twentieth Day of* April, Ann. Dom. 17 - -

A Judgment *on the foregoing* Information, *the Defendant having appeared and pleaded.*

AT the Time and Place appointed by our Summons on the Information within written, that is to ſay, this Second Day of *May*, *Anno Domini* 17 - -, at *Thetford* in the County of *Norfolk*, the within named Defendant appeareth and pleadeth, That he is not Guilty of the Offence within mentioned; but, the ſame being now fully and duly proved, we do convict him thereof: It is therefore now here conſidered and adjudged by us the ſaid Juſtices, that the ſaid Defendant hath forfeited the within-mentioned Sum of Twenty Pounds Ten Shillings, *which we mitigate and leſſen to the Sum of Ten Pounds*, to be diſtributed as the Law directs. Given under our Hands at *Thetford* aforeſaid, this Second Day of *May An. Domini* 17- -

☞ *But, if the Penalty is not mitigated, then theſe Words, (viz.* which we mitigate and leſſen to the Sum of Ten Pounds) *muſt be left out.*

A Warrant *(in Conſequence of the foregoing* Judgment) *againſt a* Victualler, *to levy Ten Pounds.*

To John Downer *and* Anthony Gilder, *Officers of Exciſe, and to either of them, and to ſuch other Perſon and Perſons as they or either of them ſhall take to their Aſſiſtance.*

Norfolk, ſſ. WE whoſe Hands and Seals are hereunto ſet, two of his Majeſty's Juſtices of the Peace for the ſaid County of *Norfolk*,

Norfolk, do in his ſaid Majeſty's Name authorize and command you, every or any of you, that upon the Brewing Veſſels and Utenſils for Brewing uſed by *Abel Swall*, of *Thetford* in the County of *Norfolk*, common Brewer, in the Brew-houſe and Place where he uſually brews, at *Thetford* aforeſaid, and upon the Goods and Chattels of the ſaid *Abel Swall*, you or any of you do levy the Sum of Ten Pounds of lawful *Engliſh* Money, by us mitigated and leſſened from the Sum of Twenty Pounds Ten Shillings of like Money, recovered againſt him by *John Downer*, Gent. who proſecuted as well for our Sovereign Lord the King as for himſelf, for a certain Offence committed by the ſaid *Abell Swall* againſt the Laws and Statutes of Exciſe, whereof he is convicted before us; and for the levying thereof you are to ſeize, take, and carry away the ſaid Brewing-Veſſels and Utenſils of Brewing, and alſo the Goods and Chattels aforeſaid; and if in Fourteen Days next after ſuch Seizure the ſame ſhall not be redeemed, then and in ſuch Caſe (after the Expiration of the ſaid Fourteen Days) you are to make Sale thereof, or of ſo much thereof as ſhall be ſufficient to levy the ſaid Sum of Ten Pounds, which when levied you are forthwith to pay to the Collector of Exciſe, for the Collection called *Norfolk* Collection, for the Time being, to be by him diſtributed and anſwered according to the Statute in ſuch Caſe made and provided: And if after levying thereof any Overplus ſhall remain of the ſaid Brewing Veſſels, or of the ſaid Goods or Chattels, or of the Money ariſing by the Sale thereof, you are to render ſuch Overplus to the ſaid *Abel Swall*; and all Conſtables and Headboroughs of the ſaid County are hereby required to be aiding and aſſiſting to you in the due Execution hereof; but in Caſe there cannot be found ſufficient to raiſe the Sum laſt mentioned, then and in ſuch Caſe you by a Return to this our Warrant are forthwith to certify the ſame to us the ſaid Juſtices. Given under our Hands and Seals at *Thetford*, in the ſaid County of *Norfolk*, this Second Day of *May*, in the Year of his ſaid Majeſty's Reign, *Anno Dom.* 17 - -

☞ *But, if no Utenſils or Goods can be found, a Return may forthwith be made by the Officer, as follows:*

The Form of a Return *to be made on a* Warrant *where no Utenſils or Goods can be found.*

Norfolk, ſſ. I *John Downer*, one of the Officers of his Majeſty's Duties of *Exciſe*, do humbly certify to *Brian Aiſley* and *Oliver Dodſon*, Eſqs. two of his ſaid Majeſty's Juſtices of the Peace for the County of *Norfolk*, That by Virtue of a Warrant from the ſaid Juſtices, to levy the Sum of Ten Pounds upon the Brewing-Veſſels and Utenſils for Brewing, uſed by *Abel Swall* in his uſual Place of Brewing, and upon his Goods and Chattels; I have made diligent Search for ſuch Veſſels, Utenſils, Goods, or Chattels; and that I do not know, or can find, that the ſaid *Abel Swall* hath any Goods or Chattels whatſoever. Witneſs my Hand hereunto ſet, at *Thetford*, in the ſaid County of *Norfolk*, this Fourth Day of *May*, *Anno Domini* 17 - -

The above Return being duly made, a Warrant may be made out to ſeize the Body, *as followeth:*

A Warrant

A Warrant *to take* the Body *of the Defendant, upon a Return of the firſt* Warrant *that he hath no Goods.*

To John Downer *and* Anthony Gilder, *Officers of* Exciſe, *and to ſuch other Perſon and Perſons, as they, or either of them, ſhall take to their Aſſiſtance,* And

To the Gaoler or Keeper of ſuch Priſons, to whom theſe Preſents ſhall come.

Norfolk, ſſ. WHereas We whoſe Hands and Seals are hereunto ſet, two of his Majeſty's Juſtices of the Peace for the ſaid County of *Norfolk*, by our Warrant, under our Hands and Seals, bearing Date the Second Day of *May* now inſtant, Did require and command you, the ſaid *John Downer* and *Anthony Gilder*, or either of you, to levy the Sum of Ten Pounds therein mentioned, on the Brewing-Veſſels and Utenſils for Brewing, uſed by *Abel Swall*, of *Thetford*, in the ſaid County of *Norfolk*, common Brewer, and upon the Goods and Chattels of the ſaid *Abel Swall:* And whereas you the ſaid *John Downer*, by a Return and Certificate under your Hand, bearing Date the Fourth Day of *May* now inſtant, have certified to us, that having made diligent Search for ſuch Brewing Veſſels or Utenſils for Brewing, and for ſuch Goods and Chattels, you cannot find any, whereon to levy the ſaid Ten Pounds, or any Part thereof, and that no ſuch Veſſels, Utenſils, Goods, or Chattles can be found; We therefore the ſaid Juſtices Do in his ſaid Majeſty's Name hereby Authorize, Require, and Command you, every, or any of you, to take and arreſt the Body of the ſaid *Abel Swall*, and forthwith to carry the ſame to the Gaol or Priſon of and for the County or Place where you ſhall ſo take and arreſt the ſame; and the ſame, together with a Duplicate of this our Warrant, there to deliver into the Cuſtody of the Gaoler or Keeper of the ſaid Gaol or Priſon of and for the ſaid County or Place, there to remain in ſafe Cuſtody, until he ſhall ſatisfy and pay the ſaid Sum of Ten Pounds of lawful *Engliſh* Money, by us mitigated and leſſened from the Sum of Twenty Pounds Ten Shillings of like Money, by us the ſaid Juſtices adjudged againſt him, upon an Information exhibited againſt him before us, by the ſaid *John Downer*, Gent. as well on the Behalf of his ſaid Majeſty, as of himſelf, for a certain Offence committed by the ſaid *Abel Swall* againſt the Laws and Statutes of *Exciſe*, whereof he ſtands convicted before us the ſaid Juſtices: And all Conſtables and other his Majeſty's Officers are hereby Authorized and Required, to be Aiding and Aſſiſting to you in the due Execution hereof; and the Gaoler and Gaolers, Keeper and Keepers of ſuch Gaol or Priſon to which you ſhall ſo carry the Body of the ſaid *Abel Swall*, is and are hereby Authorized and Required to receive into his or their Cuſtody the Body of the ſaid *Abel Swall*, and keep the ſame in ſafe Cuſtody until he ſhall ſatisfy and pay the ſaid Sum of Ten Pounds before-mentioned; and for your, any, or either of your doing, as before is reſpectively directed, this ſhall be to you, any or either of you reſpectively, a ſufficient Warrant and Authority. Given under our Hands and Seals at *Thetford* in the ſaid County of *Norfolk*, this Fifth Day of *May*, in the Year of the Reign of his ſaid Majeſty, *Annoq; Domini* 17 - -

F I N I S.

A TABLE of the moſt USEFUL MATTERS

relating to *Ale*, *Beer*, *Cyder*, *Perry*, *Sweets*, *Mead*, *Vinegar*, *Diſtill'd Spirituous Liquors*, *Foreign Brandy*, *Rum*, *Arrack*, &c. contained in thoſe *Chapters* intitled *The Riſe and Progreſs of the EXCISE*, with *neceſſary* References to the APPENDIX, *&c.*

N. B. *In this* Table *Care has been taken to* aſcertain *the* Diſtribution *of the* Forfeitures *therein mentioned.*

A.

ACCOMPLICE, *See* Foreign Brandy, 17, 60, 95, 98. ——— *Page* 457
ADMINISTRATOR. *See* Foreign Brandy, 93, 97 ——— 464
ALLOWANCES. *See* Brewers, 3. ——— ——— 448
ALTERING Veſſels. *See* Brewers, 10 and 14. ——— 448
APPEALS.
1. By whom to be determined if within the *Bills of Mortality*, and in what Time to be brought. ——— ——— 242
2. All *Appeals* relating to the *Exciſe* to be heard and determined in the *proper County*. ——— ——— ——— 244
3. There's no *Appeal* from the Judgment of *two* or *more* Juſtices allow'd of by any of the *Exciſe* Laws. ——— ——— 242
4. No *Appeal* to be admitted till the ſingle Duty is *depoſited* and *Security given* to anſwer *the Fine*. ——— ——— 244
5. *Appeals* from the Judgment of the *Sub-Commiſſioners* by whom and where to be determined, and in what Time to be brought. 242
6. From the Judgment either of the *Commiſſioners* or *Juſtices* relating to *Brandy*, *Rum*, &c. no *Appeal* to be allowed. ——— 284
7. The Judgments of *two* or *more* Juſtices relating to *Veſſels*, *Horſes*, *Carts*, &c. employ'd in Running of Goods, are not liable to any *Appeal*. 319
[*See* Appendix, *Pages* 440 *and* 441.]

APPREHENDING. *See* Foreign Brandy, 17, 18, 57, 58, 59, 60, 94, 95, 97.
ARRACK, *See* Foreign Brandy *throughout*.
ASSAULTING Officers. *See* Brewers, 26, 29, 36, 37. Diſtillers, 23, 37, 39, 50, 60, 96. Foreign Brandy, 28, 32, 80, 85, 89, 90, 93. Cyder, 2. Vinegar-Makers, 8. Sweet-Makers, 7. Mead-Makers, 2.
ASSISTING in Running Goods. *See* Foreign Brandy, 11, 16, 17, 19, 23, 37, 38, 39, 40, 41, 56, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 80, 82, 89, 90, 93.

B.

BAIL. *See Foreign* Brandy, 23, 85. ——— ——— 457
BARREL. *See* Brewers, 3. ——— ——— ——— 448
BEER. *See* Brewers *and* Retailers of Beer and Ale. ——— 447
BITTER Ingredients. *See* Brewers, 20, 21. ——— 449
BRANDY. *See* Foreign Brandy *and* Diſtillers. ——— 454, 457
BREWERS *and* Retailers *of* Beer *and* Ale.
1. *Not making* Entry *Weekly* forfeit 5 l. and 10 l. more; *three fourths* to the King, and *one fourth* to the Informer. ——— 240
2. Wilfully making a *falſe* Entry forfeit 5 l. (and *their Allowance* for 6 Months enſuing) *three fourths* to the King, and *one fourth* to the Informer. 240

BREWERS *and* Retailers *of* Beer *and* Ale, *continued.*

3. *What Allowance* is made in *London* for *Waſte* by *Filling* and *Leakage.* —— —— —— *Page* 241
—— And *what Allowance* is made in the *Country* for ditto. — 245
—— How this *Allowance* may be *forfeited.* —— 241
4. *Not clearing* the Duty *within a Week* after Entry is made, to pay *double Duty* —— —— —— 240
5. *Not declaring* how much *Strong* and how much *Small* they intend to make, before any Part is *cleanſed* or *removed*, forfeit 20 s. *per Barrel*; *half* to the King, and *half* to the Informer, and the whole charged *Strong.* —— —— —— 249
6. *Increaſing* or laying over Strong Beer or Ale after the *Length* is declared, forfeit 5 l. per *Barrel*; *half* to the King, and *half* to the Informer. 249
7. How *common Brewers* ſhall not avoid the *Penalties* relating to the increaſing *Strong Drink.* —— —— 249
8. Having *Pipes* or *Stop Cocks* under Ground, or *private* Pipes out of one Brewing-Veſſel into another, or into any other Place, forfeit 100 l. for every Offence; *half* to the King, and *half* to the Informer. — 249
9. In *what Manner* they may uſe *Pipes, Stop-Cocks*, &c —— 250
10. *Setting up, Altering*, or *Enlarging* any Brewing Veſſel, or having any *private* or *concealed* Brewing-Veſſel, forfeit 200 l. for every ſuch Veſſel; *half* to the King, and *half* to the Informer. —— 250
11. *Delivering* any *Waſh, Tilts, Ale, Beer*, or *Vinegar Beer* to any Diſtiller or Vinegar-Maker, without Notice, forfeit 20 s. *per Barrel*; *half* to the King, and *half* to the Informer. —— —— 250
12. *Carrying-out Drink* at *unlawful Hours*, forfeit 20 s. per *Barrel, one third* to the King, *one third* to the Poor, and *one third* to the Informer. 243
13. *Servants* concerned in making any *Increaſe*, or in laying off before the *Length* is declared, forfeit 20 s. *per Barrel* (or 3 Months Impriſonment;) *half* to the King, and *half* to the Informer. —— 249
14. *Erecting* or *Altering* any Brewing-Veſſels, or making uſe of them for Brewing, or making uſe of any *private* Storehouſe, Cellar, or Place, forfeit 50 l. for every Offence, and the Perſon likewiſe in whoſe Occupation ſuch Place is, forfeits 50 l. *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer; and the Veſſels and Drink to be ſeized for the Uſe of the Poor. —— 242
15. How the *Contents* of their *Veſſels* are to be aſcertained.—— 243
16. All *Brewing-Veſſels* in the *Brewhouſe* (by whomſoever claimed) are liable to the *Debts* and *Duties* of *Exciſe.* —— 243
17. Converting *Small Beer* or *Worts* into *Strong* by *Mixture*, without giving Notice, forfeit 20 s. per *Barrel, Page* 246; alſo 20 s. more *per Barrel*; *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. —— —— 249
17*. Uſing any *private* Storehouſe or Place, forfeit 50 l. for every Offence; *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. —— —— 246
18. Uſing *Sugar, Honey, Foreign Grains, Guinea Pepper, Eſſentia Bine, Coculus Indiæ*, or any other unwholſome Ingredients, (in Brewing *Beer* or *Ale*) forfeit 20 s. for every Offence; *half* to the King, and *half* to the Informer. —— —— 250, 252

BREWERS

BREWERS *and* Retailers *of* Beer *and* Ale, *continued.*

19. Mixing *Sugar*, *Honey*, *Foreign Grains*, *Guinea Pepper*, *Eſſentia Bine*, *Coculus Indæ*, or any other unwholeſome Ingredients (the mixing any of them) with *Ale* or *Beer*, forfeit 20 l. for every Offence; *half* to the King, and *half* to the Informer —— —— *Page* 252

20. Uſing *Broom* or *Wormwood* or any other *bitter* Ingredients in brewing *Beer* or *Ale*, inſtead of *Hops*, forfeit 20 l. for every Offence; *half* to the King, and *half* to the Informer. —— —— 252

21. In *what Manner* they may uſe *Broom* or *Wormwood* in *Beer* and *Ale*. 253

22. Uſing *Melaſſes*, *Coarſe Sugar*, *Honey*, or *Extract of Sugar*, in Brewing or Working *Beer* or *Ale*, forfeit 100 l. and all the Liquor in which they ſhall be put; *half* to the *King*, and *half* to the Informer. 247

23. Uſing *Melaſſes*, *Coarſe Sugar*, *Honey*, or *Extract of Sugar*, in Brewing or Working *Beer* or *Ale*, or having above *ten Pounds* Weight found in their Cuſtody, forfeit 100 l. *half* to the King, and *half* to the Informer. —— —— —— 250

24. *Servants* and *every other Perſon* that aſſiſts in uſing any *Melaſſes*, *Honey*, *Coarſe Sugar*, or *Extract of Sugar*, or in *carrying* or *conveying* them into the Brewhouſe, or other Place belonging to ſuch Brewer, forfeit 20 l. (or three Months Impriſonment;) *half* to the King, and *half* to the Informer. —— —— 250

25. *Brewing* for *any other* Brewer or Retailer, without giving Notice and paying down the *Exciſe*, forfeits 5 l. *per Barrel*; the Perſon for whom it is brewed likewiſe forfeits 5 l. *per Barrel*; *half* to the King, and *half* to the Informer. —— —— 243

26. *Oppoſing* any Gauger or Officer in ſearching for any *private Pipe*, *Stop-cock* or *Conveyance*, &c. forfeit 50 l. *half* to the King, and *half* to the Informer. —— —— 249, 250

27. *Mixing* Small Beer or Small Worts with Strong Beer or Ale on the Dray, or in the Victualler's Cellar, or other Place, forfeit 5 l. for every Offence; *half* to the King, and *half* to the Informer. — 247

28. *Cleanſing* or *removing any Part* of the Guile (before the whole is brewed off) *without Notice*, forfeit 40 s. *per Barrel*; *half* to the King, and *half* to the Informer. —— —— 247

29. *Refuſing the Officer to enter* by Day or Night, and to ſtay in the Brewhouſe to ſee the Guile brew'd off, *&c.* forfeit 20 l. *half* to the King, and *half* to the Informer. —— —— 247

30. *Selling*, *carrying*, or *delivering out* Beer or Ale, after being *forbid* by the Officer (and the Duty being not paid) forfeit 5 l. and *double* the Value of the Goods; alſo 10 l. more, and *double* the Value of the Goods; *three fourths* to the King, and *one fourth* to the Informer. 241

31. *Concealing*, *hiding*, or *conveying away* Drink or Worts from the Sight of the Gauger before 'tis *gauged*, forfeits 20 s. *per Barrel*; *one third* to the Poor of the Pariſh, and *one third* to the Informer. —— 243

32. *Mixing* Beer, Ale or Worts of an *extraordinary Strength* (after 'tis received from the *common Brewer*) with any *Small Beer*, *Ale*, or *Worts*, in any Veſſel containing *three Gallons or more*, forfeit *double* the Duty of the Strong Beer or Ale *ſo mixed*; *three fourths* to the King, and *one fourth* to the Informer —— —— —— 245

BREWERS *and* Retailers *of* Beer *and* Ale, *continued.*

33. *Bribing* or *corrupting* any *Gauger* or *Officer*, forfeit 10l. (or 3 Months Impriſonment,) for every Offence, and the *Receiver* likewiſe forfeits 10l. *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. ——— ——— *Page* 244

34. *Alſo* for *endeavouring* to corrupt any Officer, 500l. *half* to the King, and *half* to the Poor of the Pariſh. ——— ——— 322

35. *Alſo* for *offering* to bribe any Officer, 50l. *half* to the King, and *half* to the Informer. ——— ——— 328

36. *Oppoſing* any Officer in the ſearching for *private* Backs, Tons, Pipes, *&c.* forfeit 20l. *half* to the King, and *half* to the Informer. 248

37. *Refuſing* to let the Gauger enter the *Cellar* or other *Rooms*, and *taſte* the *Drink* taken from *common Brewers*, forfeit 5l. for every Offence; *half* to the King, and *half* to the Informer. ——— 247

38. Not making Entry *Monthly*, forfeit 5l. more; *three fourths* to the King, and *one fourth* to the Informer. ——— 240
Not clearing off the Duty, within a *Month* after *Entry*, to pay *double* Duty ——— ——— ——— 241

39. Not making Entry *Monthly*, forfeit 20s. and 20s. more; *three fourths* to the King, and *one fourth* to the Informer ——— 241
Not clearing off the Duty within a *Month* after *Entry*, to pay *double* Duty.

40. Every Perſon keeping a *Public Houſe* in any *City*, *Town*, *Village*, or Place whatſoever, *retailing* Ale or Beer in Veſſels not duly *ſized* and *marked* according to the *Standard*, forfeits from 40s. to 20s. for every Offence; *half* to the Poor of the Pariſh and *half* to the Informer. 250, 251

41. Perſons incurring Penalties, or chargeable with the Duties of Exciſe, *removing out of one* Juriſdiction, may be proſecuted *in another*.— 253

42. The OFFICE HOURS are now from 6 in the *Morning* to 2 in the *Afternoon*. ——— ——— ——— 253

[*See* Appendix, *pages* 432, 434, 435, 436, 443. *and from page* 231 *to* 240.] *alſo* Diſtillers 89.

BREWING for others.. *See* Brewers, 25. ——— ——— 451

BREWING-Veſſels. *See* Brewers, 10, 14, 16. Diſtillers, *&c.* 17, 20, 21, 24, 25, 26, 27, 94, 95.

BRIBES. *See* Brewers, 33, 34, 35. *and* Foreign Brandy, 45, 78.

BROOM. *See* Brewers, 20, 21.

BUYERS of Run Goods. *See* Foreign Brandy, 19, 38, 39, 40, 41.

C.

CARRYING out Drink. *See* Brewers 12.

CARMEN carrying *Run* Goods. *See* Foreign Brandy, 75. ——— 466

CARRIAGES. *See* Foreign Brandy, 64.

CASKS, the *Size* for Importation. *See* Foreign Brandy, 6 *and* 10.

CERTIFICATES. *or* Permits. *See* Diſtillers, 33, 34, 55. Foreign Brandy, 22, 35, 36, 73. *and* Officer *or* Gauger, 6, 13.

CHARGES on Traders. *See* Officers *and* Gaugers, 2, 9, 10, 11, 12, 19,*
——— *on* Brewers, 16.
——— *on* Diſtillers. *See* Officers, *&c.* 9, 10, 11, 12.

CLAIM, *See* Brewers 16. *and* Diſtillers, 24, 25, 26, 41.

COASTWISE carrying. *See* Diſtillers, 29. *and* Foreign Brandy, 4, 25, 26.

COCULUS INDIÆ. *See* Brewers, 18, 19.

COLLEGES in the Univerſities, their Privilege. ——— 244, 252

COM-

COMMISSIONERS *and* Subcommiſſioners.
1. Are to appoint *Gaugers.* ——— ——— *Page* 241
2. May *compound* for the Duty with *Traders.*—— ——— 241
3. To hear and determine all Forfeitures and Offences *within* the Bills of *Mortality.* ——— ——— ——— 242
4. May hear and determine Forfeitures and Offences *(out* of the Bills of Mortality) if the *Juſtices of the Peace* refuſe or neglect to do it for 14 Days after Complaint made. ——— ——— 242
5. May *ſummon Evidences* and *fine* them, *&c.* ——— 245
6. May deduct the Charges of providing *Standard* Ale Quarts and Ale-Pints, and it ſhall be allowed in their Accounts.
8. Where they are fit to execute their Commiſſions. ——— 243
10. What Number of them are to hear and determine Offences. 324
11. Acting in the *Exciſe* before taking the *proper Oaths*, forfeit 50 l. *per Month.* ——— ——— ——— 244
12. Taking or demanding *Money or any Reward* of any other Perſon than the King, forfeit their Office, and are diſqualified for an Employment in the *Exciſe.*—— ——— ——— 246
13. To provide Ale-Pints and Ale-Quarts, or forfeit 5 l. *half* to the Poor of the Pariſh, and *half* to the Informer. ——— 251
——— ——— of the Cuſtoms. *See* Foreign Brandy, 94, 97, 98.
See Subcommiſſioners *and* Diſtillers, 74, 82, 85, and 103.
COMPLAINTS. *See* Appeals.
COMPOUNDERS. *See* Brewers, 25. *and* ——— —— 233
COFFEE. *See* Tea.
——— Houſes. *See* Diſtillers, 71.
CONCEALING. *See* Brewers, 10, 14, 17*, 31. Diſtillers, 16, 18, 10, 22. Foreign Brandy, 10, 37, 79, 92. Cyder, 1. Vinegar-Makers, 2. Sweet-Makers, 1. Mead-Makers, 1. [*See* Appendix, 435, 445.]
CONSTABLE. *See* Diſtillers, 48, 49, 84, 85. Foreign Brandy, 43. Officers, 4. *and* ——— ——— ——— ——— 233
CONTENTS of Veſſels. *See* Brewers, 15.
COPIES of Charges. *See* Officers, 16, 16*, 17, 18, 19, 19*, 19½.
COSTS and Charges,—Muſt be included in the *Mitigation, page* 242.—and deducted before the Diſtribution of Forfeitures, 242—muſt be *double* on reverſing or affirming Judgments on Appeals, *page* 244.—muſt be *double* on a Verdict or Nonſuit for thoſe ſued for executing the Exciſe Laws, *page* 242.—muſt be *treble*, *pages* 282 *and* 251.—Coſts of Suits to be deducted before any *Diſtribution* is made relating to *French Brandy*, *page* 315.—Reaſonable *Charges* to be deducted before the Overplus is return'd to the Sellers in *falſe Meaſure*, *page* 251. [*See* Appendix, *pages* 442, 443.]
COSTS of Suit. *See* Foreign Brandy, 99, 100.
CYDER and PERRY *Makers* and *Retailers.*
N. B. "*Theſe Traders* are to *make Entry* and *pay off the* Duty as *Innkeepers* " and *Victuallers*, and *Retailers* of *Beer* and *Ale*, and are ſubject to *much* " *the ſame Survey*, *Prohibitions*, &c. as may be ſeen in *Page* 240, *&c.* " of *Chapter* IV."
1. *Hiding*, concealing or conveying away from the Sight and View of the Gauger, forfeit 40 s. *per Hogſhead*; *three fourths* to the King, and *one fourth* to the Informer. ——— ——— 272

CYDER and PERRY *Makers* and *Retailers, continued.*

2. *Refuſing* to let the Gauger enter *their Houſe or other Place,* and take an Account of their Goods, forfeit 15 l. for every Offence; *three fourths* to the King, and *one fourth* to the Informer. ——— *Page* 272
3. Delivering their Goods to *Diſtillers*, or *Vinegar-makers*, without giving the Officer *proper* Notice, forfeit 20 s. *per Barrel*; *half* to the King, and *half* to the Informer. ——— ——— 272
4. Who ſhall be deemed *Retailers* of Cyder and Perry. —— 272, 273
5. Where Dealers in Cyder and Perry, *receiving great Quantities*, ſhall be ſubject to the Duty of 4 s. *per Hogſhead*, and if they refuſe to permit the Officer to enter their Cellars, and to take an Account of their Goods, forfeit 20 l. for every Offence; *half* to the King, and *half* to the Informer.——— ——— ——— 273
6. *Selling* in leſs Quantity than 20 *Gallons*, liable to an *Additional Duty* of 4 s. *per Hogſhead*, and to make Entry of their Storehouſes, *&c.* forfeit 50 l. for every Default. ——— ———273

[*See* Appendix, 435, 446. *alſo page* 271.]

D.

DEALERS in *Brandy, Rum, Arrack*, and *Tea*. *See* Diſtillers and Foreign Brandy *throughout*.

DECREASE in Stock. *See* Foreign Brandy, 35.

——— of Diſtillers Waſh. *See* Officers, 9, 10, 11, 12. *See alſo page* 278.

DISCOVERERS of *Smugglers*. *See* Foreign Brandy 17, 18, 60, 67, 94, 95, 98.

DISGUISE. *See* Face blacked.

DISTILLERS, *Sellers and Dealers in Brandy, and Retailers of Spirituous Liquors.*

1. *Not making* Entry *monthly*, forfeit 5 l. *-more* 5 l.—*three fourths* to the King, and *one fourth* to the Informer. —— ——— 240
2. *Not paying* off the Duty *within a Month* after Entry made, to pay *double* Duty. ——— ——— ——— 240, 241
3. *Selling* or *carrying out* after forbid by the Officer, and *before* the Duty is paid, forfeit 5 l. and *double* the Value of the Goods; *more* 10 l. and *double* the Value of the Goods; *three fourths* to the King, and *one fourth* to the Informer. ——— ——— 241
4. *Refuſing to permit* the Officer *to enter* their *Diſtil-houſe* by Day or Night, forfeit 15 l. *half* to the King, and *half* to the Informer. —— 280
5. Who ſhall be deemed to be a *Diſtiller*. —— ——— 282
6. In what Time *Informations* againſt Diſtillers muſt be laid. —— 283
7. *Working* their Stills, or *carrying* out their Liquors at *unlawful Hours*, forfeit 10 l. for every Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 281
8. *Selling or removing* Low Wines without drawing them off *a ſecond Time*, forfeit 5 s. per *Gallon*; *half* to the King, and *half* to the Informer. 280
9. *Refuſing* to permit the Officer to *enter and take an Account*. — 60, 280
10. *Refuſing* to let the Officer take off the Head of any Still, *unleſs it be at Work*, or to ſtay 'till it is wrought off, forfeit 20 l. for every Offence; *half* to the King, and *half* to the Informer. ——— 281
11. *Mixing* any other Materials with *Malt Drink*, the Low Wines of it are liable to a Duty of 12 d. *per Gallon*. ——— ——— 280
12. *Mixture* of Spirits with any kind of Waſh or Liquor, except *common Water*, chargeable with 6 d. *per Gallon*. —— ——— 283

DISTILLERS, Dealers in Brandy, *&c. continued.*

13. *Receiving* or *preparing* any Waſh from *Melaſſes*, or *other Materials*, till the Liquor from *Corn* is drawn off, forfeit 5 l. *per Barrel*; *half* to the King, and *half* to the Informer. ——— ——— 281
14. Putting *Cyder* or *Perry* into the Still, without giving the Officer *forty-eight* Hours Notice, forfeit 5 l. ——— ——— 286
15. The Duty of 4 s. *per Hogſhead* on Cyder and Perry is not due from Diſtillers; but if they uſe any of it, *unleſs for Diſtillation*, they forfeit 5 l. 286
16. *Hiding* or *concealing* any Low Wines, Spirits, *&c.* from the View of the Gauger, to avoid paying the Duty, forfeit 5 s. *per Gallon*; *all* to the King. ——— ——— ——— 280
17. *Setting up*, *uſing*, or *altering* any Still or other Veſſel *without Notice*, forfeit 20 l. for every Offence, *page* 280.—*more* 20 l.—*half* to the King, and *half* to the Informer. ——— —— 280
18. *Uſing* any private or concealed Warehouſe, Storehouſe, or Place, *without giving Notice*, forfeit 20 l. for every Offence. —— 280
19. The Perſon likewiſe *in whoſe Occupation* ſuch Place is, where any *concealed* Still, or other Veſſel, ſhall be diſcovered, forfeits 20 l. *half* to the King, and *half* to the Informer, *page* 280— *more* 50 l.— *half* to the King, and *half* to the Informer. ——— ——— 280
20. All Stills and Utenſils uſed by Diſtillers are liable to *all Arrears* of Exciſe, *in whoſeſoever's Hands they are*, as if the *Offender* were the real Owner thereof. —— ——— ——— 281
21. *Uſing*, or *having* any *private* Warehouſe or Place, Stills or other Veſſels, or any *private* Pipe, Stop-Cock, or Conveyance; *or* if any Diſtiller, or *any other Perſon*, obſtruct the Gauger in ſearching for the ſame, forfeits 100 l. for *every* Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 282
22. When the Officer may *break the Door*, or *any Part of the Houſe*, to ſearch for ſuch *private* Places, Stills, or Conveyance, and ſeize them.—282
23. *Any Perſon oppoſing* the Gauger, *&c.* in making ſuch Search, forfeits 200 l. *half* to the King, and *half* to the Informer. —— 283
24. Utenſils, not claim'd in *twenty Days* after they are ſeized, are forfeited and may be ſold; *half* to the King, and *half* to the Informer—282
25. *Any Perſon claiming* ſuch Utenſils or Goods in *twenty Days* after Seizure, forfeits 200 l. for every private Warehouſe or Place, *and* likewiſe for every Veſſel found therein; *half* to the King, and *half* to the Informer. ——— ——— ——— 282
26. The Proprietor, or Perſon in whoſe Cuſtody the Utenſils are found, *refuſing to claim them*, ſhall not exempt them from the Penalty of 200 l. 283
27. In what Manner the Officer is to make good the *Damage* he does, if he finds no concealed Goods or Veſſels.—— ——— 283
28. *On the Exportation* of Spirits drawn from *malted Corn*, there's a Drawback of 3 d. *per Gallon*. ——— ——— 281
29. Low Wines or Spirits, *brought Coaſtwiſe without a Certificate*, are forfeited; *half* to the King, and *half* to the Informer. ——— 284
30. *Diſtillers* and *their Apprentices* (who were ſuch at *Lady-Day*, 1736) impowered to follow *any* Trade in any City or Place, notwithſtanding any Charter or Cuſtom to the contrary. —— ——— 289

DISTILLERS, Dealers in Brandy, *&c. continued.*

30.* *Diſtillers* not to act as Juſtices whilſt they exerciſe their Buſineſs. 291, 299.

All Sellers and *Dealers* in *Brandy, Rum, Arrack, Strong Waters,* and *Spirits,* let them be *Britiſh* or *Foreign.*

31. Who ſhall be deemed to be a *Seller* and *Dealer* in Brandy, Rum, *&c.* 285

32. Not making *Entry* of all their Warehouſes, *&c.* and of all their Brandy, *&c.* therein, forfeit 20 l. together with the Goods and Caſks, *&c.* in which they are contained; *half* to the King, and *half* to the Informer. ——— ——— ——— *Page* 284

33. All Brandy or Spirits, brought into any Warehouſe or other Place *without a Permit, and giving the Officer Notice,* are forfeited with the Caſks and Veſſels. — ——— ——— 285

34. Any Brandy, *&c. exceeding one Gallon, moved* by *Land* or *Water,* without a *Permit* or *Certificate,* is forfeited, with the *Caſk, &c.* in which it is contained. ——— ——— ——— 285

35. Expoſing to Sale any *Britiſh* or *Foreign* Brandy, *&c. in an unentered Place,* forfeits 40 s. *per Gallon*; *half* to the King, and *half* to the Informer. ——— ——— ——— ——— ——— 285

36. *Britiſh* or *Foreign* Brandy, *&c.* expoſed to Sale *in unentered Places,* is forfeited with the *Caſks, &c.* beſides the 40 s. *per Gallon.* —— 286

37. *Hindering,* or *refuſing* the Officer to enter and take an Account of their Goods, forfeit 50 l. for every Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— ——— 285

38. *Who* they are that have *a Power* to make *Seizures.* ——— 286

39. *Oppoſing* the Officer in making Seizures *or* ſtaving, *or endeavouring* to ſtave or deſtroy any *Caſk* or *Bottle,* containing Liquors that have been ſeiz'd, forfeit 40 l. for every Offence.—— ——— ——— 286

40. How Seizures made WITHIN and OUT OF *the Bills of Mortality,* ſhall be *examined* and *determined.* ——— ——— 285, 286

41. How the Proceedings muſt be in caſe of ſuch Seizures, when no-body appears to claim the Goods in *twenty Days.* ——— —— 286

42. Any Perſon ſelling *Brandy* or *Spirits* by Retail, *to be drank in their Houſes* without a *Juſtice's Licence,* are liable to the ſame Penalties as *Victuallers* ſelling without *a Licence.* ——— ——— —— 283

44. Such *Retailers* of Brandy or Spirits are equally ſubject, with common *Alehouſe-keepers,* to the Power of *Juſtices* and *other Officers.* —— 284

All Retailers of *Spirituous Liquors.*

45. *Selling, Hawking,* or *expoſing to Sale,* any Brandy or ſtrong Waters about the Streets, Fields, *or* on the Water *in any Manner whatever, or* on any Buſk, Shed, or Stall, *or* in any other Place than *a Dwelling-Houſe,* forfeit 10 l. for every Offence; *half* to the Poor of the Pariſh, and *half* to the Informer, or Impriſonment for *Three* Months, *page* 287. —*more* 10 l. *half* to the Poor of the Pariſh, and *half* to the Informer, *if there be an Informer*; or elſe *all* to the *Poor,* or be committed to the Houſe of Correction for *Two* Months. — ——— ——— 287

[*See* Foreign Brandy, 73.]

46 Offenders *refuſing to pay* the Penalty of 10 l. to be ſent to the Houſe of Correction, and whipped till their Bodies are bloody. *See alſo* 70, 289.

47. *Occupiers of Houſes,* &c. knowingly permitting the *clandeſtine* Selling of Spirituous Liquors therein, are to be deemed the Retailers, and forfeit 100 l. for every Offence; *half* to the King, and *half* to the Informer. 290

DISTILLERS, Dealers in Brandy, *&c. continued.*

48. *Any one* may apprehend *Hawkers* of Spirituous Liquors, and detain them till a Conſtable or other Peace or Pariſh Officer can be got, who muſt carry them before a Juſtice. ——— ——— *Page* 291
49. A Conſtable, *or other Peace Officer*, refuſing or neglecting to aid and aſſiſt in bringing Retailers to Juſtice, forfeits 20 l. for every Offence; *half* to the Poor of the Pariſh, and *half* to the Informer. ——— 291
50. *Five, or more*, aſſembling to reſcue any Offender, or to aſſault any Informer, on Conviction, ſhall be guilty of *Felony*, and be *tranſported* for *ſeven* Years. ——— ——— ——— 290
51. Selling, in *leſs* Quantity than *two Gallons*, any *Spirituous Liquors* or *Strong Waters* mixt or unmixt, without a Licence, *and* not renewing the Licence *yearly*, forfeit 100 l. for every Offence; *half* to the King, and *half* to the Informer, *ſee alſo* 73. ——— 287
52. The *Licence* to coſt 50 l. and 50 l. to be paid *annually* for renewing it, *ſee alſo* 69, 73, 75. ——— ——— ——— 287
53. Uſing *Spirituous* Liquors, in making up *Medicines*, is not *retailing* them. ——— ——— ——— ——— 288
54. Not making *Entry* of their Warehouſes, or other Places, and the Liquors that are therein, forfeit 20 l. for *every* Warehouſe or Place, and 40 s. *per Gallon* for the Liquor, together with the *Caſks*; *half* to the King, and *half* to the Informer. ——— ——— 287
55. Receiving Liquors *without giving Notice*, and leaving with the Officer *a Certificate*, forfeit 20 l. together with the Liquors and Caſks; *half* to the King, and *half* to the Informer. ——— ——— 288
56. *Increaſing* Spirituous Liquors by the Addition of *Water* or *any other Liquors*, after the Officer has taken an Account, forfeit 40 s. *per Gallon*; *half* to the King, and *half* to the Informer; and the Liquors *wholly* to the King. ——— ——— 288
57. To whom *only* Licences for retailing ſhall be granted, *ſee alſo* 69, 71, 75. 288
58. All Retailers of Spirituous Liquors muſt have a *Juſtice's Licence*, and be ſubject to the *Juſtice* and *Officers* as Alehouſe keepers are. —283
59. Officers may enter Warehouſes, Storehouſes, Shops, Cellars, or other Places, by Day and Night, *to taſte and gauge* the Retailers Liquors. 288
60. *Refuſing* or *Hindering* the Officer in the Diſcharge of his Duty, forfeit 50 l. for every Offence; *half* to the King, and *half* to the Informer, *ſee alſo* 9 *and* 10. ——— ——— 288
61. Traders paying to *Journeymen*, &c. any Part of their Wages in Spirituous Liquors, forfeit 20 l. *half* to the King, and *half* to the Informer. 288
62. Any Perſons *retailing Proviſions or other Things*, giving Spirituous Liquors to Servants, to be deemed Retailers of Spirituous Liquors without a Licence, and forfeit 100 l. *half* to the King, and *half* to the Informer. ——— ——— ——— 289
63. In what Time Judgment is to be given againſt Retailers of Spirituous Liquors. ——— ——— ——— 287
64. Juſtices may ſummon Exciſe Officers, in order to diſcover who ſell Liquors, *&c.* without a *Licence*. ——— ——— 289
65. One or more Juſtices, upon Information or Oath, are to iſſue Warrants againſt Offenders. ——— ——— 290, 291

DISTILLERS, Dealers in Brandy, *&c. continued.*

66. Commiſſioners of Exciſe where the Offender is Poor are to reward the Informer. ——— ——— ——— *Page* 289

67. Forfeitures *to the Poor* muſt be applied and accounted for, by the Church-Wardens and Overſeers, as Monies raiſed and received on the Poor's Rates. ——— ——— ——— 291

68. *Retailers* not to act *as Juſtices* whilſt they exerciſe ſuch Trade. 291

68*. The Duty of 20 s. *per Gallon*, and 50 l. for a *Licence* (as in No. 52.) taken away. ——— ——— ——— 292

69. Retailing *Brandy*, *Rum*, *Arrack*, *Geneva*, *Uſquebaugh*, or other *Diſtill'd Spirituous Liquors*, or *Strong Waters*, without a Licence (for which there is *yearly* to be paid 20 s.) forfeit 10 l. for every Offence (or *Two* Months Impriſonment;) *half* to the King, and *half* to the Informer, *ſee alſo* 51 *and* 73. ——— ——— ——— 292

70. *Juſtices* at their *Option* may either levy the Fine, or *commit* the Offender to the Houſe of Correction for *two Months*, and order him to *be whipped* till *bloody*, before he is diſcharged, *ſee* 46. ——— 293

71. *Keepers* of any *Tavern*, *Victualling-houſe*, *Inn*, *Coffee-houſe*, or *Ale-houſe*, forfeit their Licence, if they exerciſe the Trade of a *Diſtiller*, *Grocer*, or *Chandler*, or *keep a Shop for Sale of Spirituous Liquors*, and forfeit 10 l. for *every* Offence. ——— ——— 293

72. *No Licence* can authorize the ſelling Spirituous Liquors *in any other Place*, than is *mentioned in it*. ——— ——— 293

73. *Selling* Spirituous Liquors in *leſs* Quantities than *two Gallons*, without a *Licence*, forfeit 10 l. for *every* Offence, *ſee alſo* 51 *and* 69. — 293

74. *Commiſſioners* of the Exciſe to pay *the Informer* 5 l. where the Offender is *not able to pay*, and is ſent to *the Houſe of Correction*. —— 294

75. *Diſtillers* in *London*, *Weſtminſter*, and *Southwark*, paying to *Church* and *Poor*, for 20 l. *per Ann.* and *Diſtillers* inhabiting in other Parts, *within the Bills of Mortality*, paying to *Church* and *Poor*, for 10 l. *per Ann.* may take out Licences for *Retailing* Spirituous Liquors, paying 5 l. *per Annum*. —— ——— ——— 295

76. *Diſtillers retailing* Spirituous Liquors or Strong Waters *in any other Place* than in his *public Shop*, and in more *than one Shop*, by Virtue of any *one Licence*, to forfeit 10 l. *half* to the King, and *half* to the Informer. ——— ——— ——— 295

77. *Diſtillers retailing* without ſuch *Licence*, forfeit 10 l. for every Offence, *half* to the King, and *half* to the Informer. ——— 295

78. *Licenced Diſtillers*, or their *Servants* permitting any Perſons *to drink or tipple*, forfeit 10 l. for *every* Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 295

79. *Perſons* found *drinking or tippling* in the *Houſe*, *Shop*, *or other Place* belonging to any Diſtiller, to forfeit 20 l. for *every* Offence to *the Poor* of the Pariſh, or be ſent to *the Houſe of Correction*. —— 295

80. Perſons incurring Penalties, or chargeable with the Duties of Exciſe, *removing out of one* Juriſdiction, may be proſecuted *in another*. 253

81. The Duty of 5 l. for a *Licence* altered to 20 s. ——— 296

82. The *Penalty* of 10 l. may be recovered before *a Juſtice of the Peace* as well as the Commiſſioners; but neither the Juſtices or Commiſſioners to mitigate the Penalty to leſs than 5 l. ——— ——— 296

DISTILLERS, Dealers in Brandy, *&c. continued.*

83. No Perſon to be licenced in the Limits of the Head Office of Exciſe, who is not rated to *the Pariſh-Rates* for 10 l. a Year; nor elſewhere unleſs they *pay to Church* and *Poor*. ——— *Page* 296

84. Retailers *unlicenced* for the *Firſt* Offence, (beſides being ſubject to all Penalties now in being) to have all Liquors in their Cuſtody for *Six Months* after Conviction *ſeized* and *ſtaved:* and the Peace or Pariſh-Officers may break open Doors, &c. And for the *Second* Offence to be ſent to the Houſe of Correction for *Three Months* and whipt: And for the *Third* Offence to be *tranſported*. ——— 297

85. The *Commiſſioners* and *Juſtices* may impower Peace-Officers *to break open Doors*, &c. and the Liquors found to be detained: and, if the Offender is found guilty, *to be ſtaved*; but, if the Perſon is not convicted, the Liquors *to be reſtored*. ——— ——— 297

86. *Diſtillers* ſelling to *unlicenced* Retailers forfeit 10 l. and *treble* the Value; *half* to the King, and *half* to the Informer. —— 297

87. Any *Retailers* diſcovering and proſecuting ſuch *Diſtillers*, &c. to have *Half* the Penalty; and to be indemnified for ſelling without a Licence. —— ——— ——— ——— 297

88. No *Diſtiller*, &c. to recover any Debt for *Liquors*, unleſs the Quantity delivered at *one* Time amounted to 20 s. ——— ——— 297

89. *Retailers* taking any thing by way of *Security* for Liquors ſold, to forfeit 40 s; *Half* to the King, and *Half* to the Informer; and the Perſon may recover his *Pledge* or *the Value* of ſuch Retailer. ——— 298

90. No *Licence* to be granted for retailing Liquors in any *Gaol, Houſe of Correction*, &c. And the *Gaoler*, &c. permitting ſuch Liquors to be *ſold, uſed*, &c. to forfeit 100 l; *Half* to the King, and *Half* to the Informer: And for the *Second* Offence to forfeit *his Office*; and Juſtices or Conſtables may *ſearch* and *ſeize*, and *ſtave* ſuch Liquors. — 298

91. Any Perſon *attempting* to carry ſuch Liquors into *Gaols*, &c. to be committed to the Houſe of Correction for *Three Months*; or forfeit 20 l; not leſs than 10 l; *Half* to the Poor, and *Half* to the Informer. 298

92. *Gaolers*, &c. to hang up *a fair Copy* of the 3 Clauſes of the Act of the *Twenty-fourth* of *Geo.* II. Juſtices may demand a Sight thereof, and convict the Gaoler, &c. in the Penalty of 40 s; *Half* to the King, and *Half* to the Informer. ——— ——— 298

93. Juſtices are *Monthly* to ſend to *the Clerk of the Peace* a Certificate of all Perſons convicted, who is to enrol them. ——— 298

94. *Diſtillers* to make Entry of all his Utenſils: And of his Caſks for brewing or keeping *the After-runnings* or *Feints* from every Still, which are not to exceed *Two* in Number; or forfeit 50 l. *Half* to the King, and *Half* to the Informer. ——— ——— ——— 299

95. *Diſtillers* to ſhew the Gauger all his Utenſils; who is to mark them: And, for defacing any Mark, the Penalty is 20 l. *Half* to the King, and *Half* to the Informer. ——— ——— 298

96. To prevent Frauds, the Officer may take *a Sample paying for it*; and, if obſtructed in ſo doing, the Penalty is 50 l. *Half* to the King, and *Half* to the Informer. —— ——— ——— 299

DISTILLERS, Dealers in Brandy, *&c. continued.*
97. *Diſtillers in the Bills of Mortality*, muſt give 24 Hours Notice, and *in other Parts* 48 Hours Notice to the Officer, *before* they receive any Wine, Cyder, &c. or forfeit 50 l. *half* to the King, and *half* to the Informer. —— —— —— 299
98. No Brewer, Innkeeper or Diſtiller, &c. to act as a Juſtice of Peace. 299
99. Of ſelling in leſs Quantity than *Two Gallons*. —— 299
100. Juſtices *Clerks* taking more than 2 s. 6 d. *for a Licence*, forfeit 5 l. to the Informer. —— —— —— 300
101. *St. Mary le Bon* Pariſh to be under the Management of the Exciſe-Office in *London* —— —— —— 300
102. *Five or more* aſſembling to reſcue Offenders, or to aſſault &c. Informers, &c. to be *tranſported* for *Seven* Years. —— 300
103. The Commiſſioners, when *the Penalty* cannot be levied in *one Month*, may *advance* an Informer 5 l. —— —— 300
[*See* Appendix, 436, 437, 446. *alſo from Page* 276. *to Page* 280.]
DISTRIBUTION of Forfeitures. *See* Forfeitures.
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E.

ENDEAVOURING to apprehend. *See* Foreign Brandy, 97.
ENTRIES. *See* Forfeitures. — —— —— 473
ENTRY making (with an Exciſe Officer) of Spirituous Liquors, Beer, Ale, Cyder, or Perry, ſhall be deemed a Selling of ſuch Liquors. —— 289
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FINES. *See* Forfeitures. —— —— —— 473
FOREIGN BRANDY, RUM, ARRACK, and other *imported* Liquors.
1. *Foreign Liquors* imported to pay the Exciſe *upon Entry*, and a Warrant for Landing, or they are forfeited, *or* the Value to be recovered of the Informer; *half* to the King, and *half* to the Informer. — 314
2. How the *Value* of Goods *forfeited* is to be *aſcertained*. —— 321
3. *Landing* ſuch Liquors without a proper Warrant, *or* the Preſence of an Officer, they are forfeited, *or* the *Value* thereof; *half* to the King, and *half* to the Informer. —— —— —— 314
4. *Landing* any exciſeable Liquors coming by *Coaſt-Cocket*, (except Beer, Ale, Cyder, Perry, and Metheglin) without making a proper Entry, forfeit *double* the Value; *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. —— 314

Fo-

FOREIGN Brandy, Rum, Arrack, *&c. continued.*

5. *Brandy* declared *a ſtrong Water perfectly* made, and with what Duty chargeable. —— —— —— *Page* 314
6. Importing *ſingle* or *double Brandy*, in Caſks or Veſſels containing leſs than *ſixty Gallons*, they are forfeited, or the Value; *half* to the King, and *half* to the Informer. —— —— —— 314
7. Importing *foreign Spirits* or *Brandy*, in Veſſels whoſe Burthen is leſs than *fifteen* Tons, forfeit *half* to the King, and *half* to the Informer. *See* Numb. 13, 14. *and* —— —— 314
8. *Importing*, *landing*, or *delivering* out of any Ship, *&c.* any *French* Brandy, before the Duty is paid, *or* ſecured to be paid; *or* being aiding and aſſiſting therein, *or* in concealing the ſame when landed; the Goods and *double* the Value are forfeited; *half* to the King, and *half* to the Informer. —— —— —— 315
9. Officers of the *Exciſe* or *Cuſtoms*, conniving, *&c.* at any clandeſtine Importation of *French* Brandy, forfeit 500 l. (and rendered incapable of any Office in the Revenues;) *half* to the King, and *half* to the Informer. —— —— —— —— 315
10. Importing *Rum* in Caſks or Veſſels containing leſs than *twenty Gallons*, unleſs it is done without Fraud or Concealment, or is for the Uſe of the Seamen, (and that not exceeding *one Gallon* for each Seaman) is forfeited; *half* to the King, and *half* to the Informer. —— 315
11. *Foreign Goods* taken in at Sea, by any Collier, Fiſherboat or Coaſting-Veſſel, or Boat, (unleſs in Caſe of Neceſſity) in order to evade the Payment of the Duties, are forfeited; and the Maſter, *&c.* of ſuch Veſſel or Boat forfeits *treble the Value*; *half* to the King, and *half* to the Informer. —— —— —— 315
12. *Salved* Goods, what Duty, *&c.* they are to pay. —— 316
13. Veſſels of leſs than *fifteen* Tons bringing any *Brandy*, *Arrack*, *Rum*, *Strong Waters*, or *Spirits* of any kind whatſoever, into any Port or Creek, are forfeited *with all their Tackle*, &c. *or* the Value thereof. This was extended to Veſſels of *thirty* Tons; *half* to the King, and *half* to the Informer. —— —— —— —— 316
14. *Foreign* Brandy, Arrack, Rum, Strong Waters, or Spirits *of any kind whatſoever*, imported in Veſſels of *forty* Tons, or under, are forfeited, *or* the Value, together with the Ship or Veſſel, and all *her Tackle*; the *Hull* to be *burnt*, and the *Tackle*, &c. *ſold* to the beſt Bidder, and to be divided: *half* to the King, and *half* to the Informer. —— 316
15. Any *Boat*, *Wherry*, *Pinnace*, *Barge* or *Galley*, *rowing*, *or built to row*, with more than *four* Oars, (within certain Limits) are forfeited; and the Owner or any Perſon uſing or rowing ſuch Veſſels, forfeits 40 l. *half* to the King, and *half* to the Informer. —— 316
16. *More than five* Perſons in Company, *armed*, *maſked*, or *diſguiſed*, or *reſiſting* the Officer, paſſing with *run* Goods within *twenty* Miles of the *Sea-Coaſt*, ſhall be deemed to be *Runners* of Foreign Goods, and ſhall ſuffer *Tranſportation* for ſeven Years; and, if they return before the Expiration of the ſaid Term, ſhall *ſuffer Death*. *See alſo* 89. 317
17. In *what Time*, and *how* a *Runner* of Foreign Goods, by diſcovering *two* or *more* of his Accomplices, may acquit himſelf, and receive 40 l. for each of his Accomplices. *See alſo* 95. —— 317

FOREIGN Brandy, Rum, Arrack, *&c. continued.*

18. In what *Time* and *how* any other Perſon, by diſcovering any Offenders, ſhall receive 40 l. for each. *See alſo* 94. ——— *Page* 317
19. *Buying* or *receiving* any *run Goods*, knowing them to be *run*, forfeits 20 l. *half* to the Informer, and *half* to the Poor of the Pariſh, *or* muſt ſuffer three Months Impriſonment. —— ——— ——— 317
20. Dealers in *Foreign* Brandy, Spirits, or Strong Waters, muſt keep them ſeparate from their *Britiſh* Spirits, or they forfeit *ten Shillings* for every *Gallon* of *Britiſh* Spirits, together with the Caſks found in the Cellar, or Place where the *Foreign* Brandy is kept; *half* to the King, and *half* to the Informer. ——— ——— ——— 318
21. *Increaſes* of *Foreign* Brandy, Spirits, or Strong Waters, found in the Hands of any Dealer, ſhall be deemed *Foreign* unduly brought in, and are forfeited, unleſs he makes it appear to be by the mixing ſome of his Stocks of *Britiſh* Spirits, in *the Sight of the Officer*, &c. *half* to the King, and *half* to the Informer. [*See* Diſtiller, 56. ——— 318
22. *Leſs* than *one* Gallon of *Foreign* Brandy, Spirits, or Strong Waters, received by Retailers without a Permit, is forfeited, with the Veſſel in which it is contained; *half* to the King, and *half* to the Informer. 318
23. All *Runners* of Brandy, and other Cuſtomable Goods, and the *Receivers*, are obliged to find Bail to anſwer all Penalties incurred by their Offence, or to go to Priſon. — ——— ——— 318
24. All *Seizures* of *Veſſels*, *Boats*, *Horſes*, *Carriages*, &c. relating to the *Exciſe* and *Cuſtoms*, to be examined and determined by *two or more* Juſtices *reſiding near* the Place where the Seizure was made. 318
25. When any Goods brought by *Coaſt-Cocket*, being unſhipped, are forfeited, or the Value; *half* to the King, and *half* to the Informer. 319
26. Any *Foreign* Goods coming *Coaſt-wiſe*, landed without the Preſence of an Officer, are forfeited, or the Value thereof; *half* to the King, and *half* to the Informer. —— ——— ——— ——— 319
27. By whom only *Seizures* of Liquors forfeited may be made. See alſo Numb. 38, 47, 48, 55, 73. ——— ——— ——— 319
28. *Oppoſing* any Officer of the *Cuſtoms* or *Exciſe*, in making *Seizures* of Brandy, Arrack, Rum, Spirits, and Strong Waters, as well *Britiſh* as *Foreign*, or any *Foreign* Exciſeable Liquors; or ſtaving, or endeavouring to ſtave or deſtroy any Caſk or Bottle, containing Liquors that have been ſeized, forfeits 40 l. for every Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 319
29. Officers of the *Exciſe* impowered to go on Board and ſearch Ships, *&c.* (as Officers of the Cuſtoms) for Brandy, Rum, Arrack, Spirits, or Strong Waters, or other exciſeable Liquors whatſoever, and alſo for Coffee, Tea, *&c.* and to ſeize all they find, which by Law is forfeited, with the Caſk, *&c.* containing the ſame, for *the King's Uſe*. See alſo 90. ——— ——— ——— 319
30. Officers of the *Exciſe* impowered to ſeize all ſuch Goods unſhipping, or laid on Land before Entry, together with the Caſks, *&c.* in which they are contained. —— ——— ——— ——— 319, 320
31. *When* and *how* the Officer may ſearch for and ſeize *Foreign* Brandy, Rum, Arrack, Spirits, *or* Strong Waters, in any Place whatever. 320

FOREIGN Brandy, Rum, Arrack, *&c. continued.*

32. Any Perſon *obſtructing* or *oppoſing* any *Exciſe Officer* in the Execution of his Duty, forfeits 100 l. for every Offence; *half* to the King, and *half* to the Informer. *See alſo* 90. ——— ——— *Page* 320

33. Brandy, Rum, Arrack, Spirits or Strong Waters, whether *Britiſh* or *Foreign*, &c. ſold or expoſed to Sale in *un-entered Places*, are forfeited (beſides the 40 s. *per Gallon)* with the Caſks or Veſſels containing the ſame; *half* to the King, and *half* to the Informer. ——— 320

34. Who ſhall be deemed *Dealers* in *Tea*, *Coffee*, *Chocolate*, or *Cocoa Nuts*. ——— ——— ——— ——— 320

35. Dealers in Brandy, Rum, Arrack, Spirits, or Strong Waters, taking out a Permit, and not ſending away the Goods, *or* returning the Permit to the proper Officer, whilſt it is in Force, forfeits *treble* the Value of the Goods; and the Officer, when there does not appear a proper Decreaſe to anſwer the Permit, *may* ſeize a like Quantity of Brandy, *&c. half* to go to the King, and *half* to the Informer. 320

36. Taking out or Demanding a *Permit*, unleſs by a Direction in *Writing* of the Perſon who is to ſend the Goods, or his known Servant, forfeits 50 l. for every Offence, or three Months Impriſonment; *half* to the King, and *half* to the Informer. ——— 320, 321

37. Any Perſon *harbouring*, *keeping*, or *concealing* any Run Goods, forfeits all *ſuch Goods*, and *treble* the Value; *half* to the King, and *half* to the Informer. ——— ——— ——— 321

38. *Run Goods*, or that are *pretended* to have been *run*, by the Perſon offering them to Sale, ſuch Goods, together with all the Package in which they are contained, may be ſeized by the Perſon to whom they are offered to Sale, or by any Officer of the Exciſe, and the *Goods*, and *treble* the Value, are forfeited; *half* to the King, and *half* to the Informer. 321

39. Where *run Goods* which are ſeized are to be depoſited. ——— 321

40. *Buying run Goods*, or which the Seller pretends to be run or prohibited, *the Buyer* forfeits the *ſaid Goods*, and *treble* the Value; *half* to the King, and *half* to the Informer. ——— ——— 321

41. The *Buyer* or *Seller* of *Goods run*, or which at the Time of Sale the *Seller* pretended were run, ſhall not both forfeit for *the ſame Goods*; but the Party, whether Buyer or Seller, that *firſt* proſecutes the other with Effect, for *treble* the Value of ſuch Goods, ſhall be diſcharged from the like Forfeiture. ——— ——— 321

42. When the *Warehouſe-keeper* (where the Goods are depoſited) may proſecute for the Forfeiture of *run Goods*. ——— ——— 321

43. A *Conſtable*, or other miniſterial Officer of the Peace, refuſing, *&c.* to go with the Officer of Exciſe, where by Law his Preſence is neceſſary, forfeits 20 l. for every Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 321, 322

44. What ſhall be Proof of being an Officer without producing a Commiſſion. ——— ——— ——— 322

45. *Any Perſon*, endeavouring to *corrupt* an Officer of *Exciſe*, forfeits 500 l. for every Offence; *half* to the King, and *half* to the Poor of the Pariſh. ——— ——— ——— 322

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FOREIGN Brandy, Rum, Arrack, *&c. continued.*

46. *Where* Brandy, Rum, or other *foreign* exciſeable Liquors, alſo *Tea* and *Coffee*, that is ſeized, *ſhall be ſold.* ——— ——— *Page* 322

47. The *Officer*, or *other Perſon* making Seizures, to have for their Encouragement *one third* free from all Charges. ——— ——— 322

48. No Officer *of the Cuſtoms*, or *other Perſon*, making a *Seizure*, is intitled to any Reward, unleſs he gives Notice in 48 Hours to the next *Exciſe Officer* or *Superviſor*, who are take an Account of the ſaid Goods, and give a Permit for their Removal. ——— 323

49. *Officers* of the *Cuſtoms* or *Exciſe* dealing in Brandy, or other Exciſeable Liquors, or in Tea or Coffee, forfeit 50 l. to any Perſon that ſhall ſue for the ſame, and rendered incapable of any Employment in the Revenue. ——— ——— ——— ——— 323

50. In caſe of a *Seizure*, if any Queſtion ſhall ariſe, whether the Duty of any *Foreign* Goods has been paid, or were lawfully imported, legally compounded for, or condemned, the *Proof* ſhall lie upon the *Owner* or *Claimer*, and not on the *Officers*. ——— ——— ——— 323

51. *Juſtices* impowered to adminiſter an Oath to Perſons ſkilled in the Nature of the *Goods*, *Veſſels*, *Horſes*, &c. ſeized, to view and make a Return of the Value thereof. ——— ——— ——— 323

52. *Brandy*, *or other Goods* brought from the *Iſle of Man*, except they are of the Growth, Product, or Manufacture of that Place, are forfeited, together with the Ship, *&c. half* to the King, and *half* to the Informer. ——— ——— ——— ——— ——— ——— 323

53. Any Perſon *carrying ſuch Goods on Shore*, or that is *aiding* or *aſſiſting therein*, *forfeits* 100 l. *half* to the King, and *half* to the Informer, or *ſix* Months Impriſonment. ——— ——— ——— ——— 323

54. *Landing Goods* in the *Iſle of Man*, that have been enter'd for *Exportation*, in order to obtain a *Drawback*, the Merchant or Exporter forfeits the *Drawback*, and *treble* the Value of the Goods; and the Maſter of the Ship or Veſſel is liable to the ſame Penalties; *half* to the King, and *half* to the Informer; and *ſix* Months Impriſonment 323

55. Inferior Officers of the Cuſtoms *neglecting to ſeize or proſecute* any Veſſel, Horſes, Carriages, *&c.* that are forfeited by Law, forfeit 50 l. *half* to the King, and *half* to the Informer or Proſecutor; or to ſuffer *ſix* Months Impriſonment. ——— ——— ——— ——— 324

56. When *three or more* Perſons, aſſembled near the *Sea-Coaſt*, &c. in order to aſſiſt in running Goods, may be committed to the County Gaol, and on Conviction to be tranſported for *ſeven* Years; and, if they return before the Expiration of the ſaid Term, *ſhall ſuffer Death*. *See alſo* 16 and 89. ——— ——— ——— ——— ——— 325

57. Every Perſon, who ſhall *apprehend* any Perſon guilty of the ſaid Offences, is intitled to a Reward of 50 l. *See alſo Numb.* 66 and 94. 325

58. Any Perſon loſing a *Limb*, or an *Eye*, or being *maimed*, or *dangerouſly wounded*, in apprehending or endeavouring to apprehend ſuch Offender, ſhall receive 50 l. over and above any other Reward. *See alſo* 96. 325

59. Any Perſon *killed* in apprehending or endeavouring to apprehend ſuch Offender, his *Executors* or *Adminiſtrators* ſhall receive 50 l. *See alſo* 93 and 97. ——— ——— ——— ——— ——— 325

FOREIGN Brandy, Rum, Arrack, *&c. continued.*

60. In *what Time* and *how* ſuch Offender, by diſcovering *two or more* of his Accomplices, may acquit himſelf, and receive 50 l. for each of his Accomplices. *See alſo* 98. ——— ——— *Page* 325

61. When *two or more* paſſing together within *five* Miles of the Sea, *or* of any navigable River, ſhall be deemed Runners of foreign Goods. *See alſo* 16, 56, and 89. ——— ——— 325

62. The Proof (in caſe of any Diſpute) that the Duty has been paid, *&c.* to lie on the Perſons found with the Goods. ——— 326

63. All Perſons convicted of the ſaid Offences to be adjudged Felons, and tranſported for *ſeven Years*; and, if they return before the Expiration of that Term, *to ſuffer Death.* ——— ——— 326

64. All *ſuch* Goods, with their Package, and all Weapons, and all the Furniture and Horſes, and other Cattle and Carriages, are loſt and forfeited. ——— ——— ——— ——— 326

65. Any Officer of the *Exciſe* or *Cuſtoms* loſing a *Limb* or an *Eye*, or being otherwiſe *maimed*, or dangerouſly *wounded*, by any Offender, in the Execution of his Duty, *or* if any ſuch Officer, *or other Perſon*, ſhall be maimed or wounded as aforeſaid, in apprehending or endeavouring to apprehend any ſuch Offender, he ſhall receive a Reward of 50 l. *over and above all other Rewards* he ſhall be intitled to. ——— 226

66. Any Perſon *killed* in apprehending or endeavouring to apprehend ſuch Offender, his *Executors* or *Adminiſtrators* ſhall be paid the 50 l. over and above all other Rewards they may be intitled to. *See* 57 *and* 94. ——— ——— ——— ——— 326

67. In *what Time* and *how* ſuch Offender, by diſcovering his Accomplices, ſhall receive 50 l. for each, over and above all other Rewards. *See alſo* 95 *and* 98. ——— ——— ——— 326

68. The *Commiſſioners* enjoin'd to cauſe the ſaid ſeveral Rewards to be paid to the Perſon intitled thereto. *See alſo* 98. — ——— 326

69. The *Commiſſioners* are to adjuſt all Diſputes in Relation to the *Sharing* of theſe Rewards. ——— ——— ——— 326

70. When *any* Perſon, or Perſons lurking, *&c.* within *five Miles* of the *Sea-Coaſt*, *or* any *Navigable River*, may be ſent to the Houſe of Correction, and whipped, and kept to hard Labour for *one* Month. 326

71. The *Commiſſioners* to pay 20 s. *per Head* to the Informer, as a Reward for every ſuch Offender ſo taken. *See alſo* 94. ——— 327

72. When ſuch Offenders ſhall not be *whipped*, but ſent to the *County Gaol.* ——— ——— ——— ——— ——— 327

73. If any Perſon not having *a Permit*, or if any *Hawker*, *Pedlar*, &c. going from Town to Town, *or* to other Mens Houſes, *notwithſtanding he has a Permit for the ſame*, offer to Sale any Tea, Brandy, Rum, *&c.* the Perſon to whom it is offered, may ſeize it, and carry the Perſon before a Juſtice, to be ſent to Priſon; and the Perſon ſo ſeizing is intitled to *one third Part* of the Produce of ſuch Goods. 327

74. When the *Commiſſioners* may advance the Proſecutor 1 s. for every *Pound of Tea*, and 1 s. for every *Gallon of Brandy* ſo ſeized, till the Goods can be ſold. ——— ——— ——— 327

FOREIGN Brandy, Rum, Arrack, *&c. continued.*

75. If any *Run or Prohibited* Goods are found carrying by, or in the Cuſtody of any *Waterman, Carman, Porter, or any other Perſon whatſoever*, the Offender ſhall forfeit *treble* the Value; *half* to the Informer, and *half* to the Poor of the Pariſh; *or* be ſent to the Houſe of Correction, to be whipped, and kept to hard Labour, not exceeding *three Months*. 327

76. All Ships arriving from foreign Parts, having on board *ſix Pounds of Tea*, or any *Foreign* Brandy, Rum, Arrack, *&c.* in Caſks containing leſs than *ſixty Gallons*, (except *two Gallons* for the Uſe of *each* Seaman) being found at Anchor, *or* hovering within *two Leagues* of the Shore, *or* to have been within the Limits of any Port, all her *Tea, Brandy*, &c. together with the Cheſts, Boxes, Caſks, *&c.* or the Value thereof, are forfeited; *half* to the King, and *half* to the Informer. *Page* 327

77. *Foreign* Goods taken in at Sea, or put out of any Ship or Veſſel within *four Leagues* of any Port of the *Britiſh* Coaſts, without paying the Duties, unleſs in Caſe of Neceſſity, are forfeited, and the Maſter, *&c.* having Charge of ſuch Ship, Veſſel, or Boat, ſo *unſhipping* or *receiving* the ſame, forfeits *treble* the *Value* thereof; and all the Veſſels into which ſuch Goods ſhall be unſhipp'd, are forfeited, if their Burthen exceed not 100 *Tons*, and the Maſter, *&c.* of the Ship, out of which the Goods ſhall be taken, forfeits *treble the Value* of the Goods ſo unſhipped; *half* to the King, and *half* to the Informer. ——— 322

78. *Offering to bribe* any Officer of the *Exciſe or Cuſtoms*, forfeits 50l for every Offence; *half* to the King, and *half* to the Informer. 328

79. All Goods found concealed on board any Ship, *&c. after the Maſter's Report* at the Cuſtom-Houſe, are forfeited; and the Maſter, *&c.* being privy to ſuch Concealment, forfeits *treble the Value* of the Goods; *half* to the King, and *half* to the Informer. ——— 329

80. Forcibly *obſtructing, beating, wounding*, or *oppoſing* any Officer on board any Ship, Boat, *&c. or* any that ſhall act in their *Aid* or *Aſſiſtance*, ſhall be tranſported for *ſeven Years*; and, if he returns before the Expiration of that Term, he ſhall ſuffer Death. *See alſo* 90. — 329

81. Any Officer of the *Cuſtoms* or *Exciſe* may go on board any *coaſting* Veſſel, and ſearch all Parts of it for uncuſtomed Goods, and may remain on board during its Stay within the Limits of the Port, and any Perſon, moleſting the Officer, forfeits 100l. for every Offence; *half* to the King, and *half* to the Informer. *See alſo* 90. ——— 329

82. When any Perſon that keeps a *Tavern, Alehouſe, Victualling-Houſe*, &c. *receiving, harbouring*, or *entertaining* Offenders, againſt the Laws for preventing Frauds in the Cuſtoms and Exciſe, ſhall be *diſqualified* for having a new Licence, and ſhall alſo forfeit 100l. *half* to the King, and *half* to the Informer. *See alſo* 92. ——— 329

83. *Sheriffs, Mayors*, &c. to grant Special Warrants for apprehending Offenders againſt the Laws for preventing Frauds in the *Cuſtoms* or *Exciſe*. 330

84. *All Judges* and *Juſtices* of the Peace in all Trials of *Seizures* are to proceed to the Merits of the Cauſe, without *inquiring* into the exact Form and Manner of making ſuch Seizures. ——— 330

85. Officers of the *Exciſe and Cuſtoms*, and their Aſſiſtants, (when reſiſted in the Execution of their Duty) may oppoſe Force to Force; and if they wound, maim, or *kill* any Perſon reſiſting them, may plead the

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FOREIGN Brandy, Rum, Arrack, *&c. continued.*

General Iſſue; and, if brought before a Juſtice, *ſhall be admitted to Bail.* [*See alſo* Appendix, 439.] —— —— —— *Page* 330

86. Perſons incurring Penalties, *or* chargeable with the Duties of Exciſe, *removing out of one* Juriſdiction, may be proſecuted *in another.* — 253

87. All guilty of *Smuggling* before the *Firſt* of *May*, 1745, *pardoned* upon certain Conditions. —— —— —— —— 332

88. *Smugglers* taking the Benefit of this Pardon, and re-offending, *to ſuffer Death.* —— —— —— —— —— 332

89. *Three or more* aſſembled, in order to aſſiſt in Exporting *Wool*, or other Goods *prohibited to be exported, or* in *relanding* Goods exported on *Debenture or Certificate, reſcuing* Goods *after Seizure* from any Officer of the *Cuſtoms* or *Exciſe, or* other Perſons employed by, or aſſiſting ſuch Officer, *or* from the Place where they have lodged them, or *reſcuing* any Offender apprehended, or *preventing* any Offender's being apprehended, *to ſuffer Death. See alſo* 16. — —— —— 333

90. Any Perſon having *his Face blacked*, or wearing any *Vizard, Maſk, or other Diſguiſe*, when paſſing with Goods; *hindering* or *reſiſting* any Officer of the Cuſtoms or Exciſe, *&c.* in *ſeizing or ſecuring* ſuch Goods; *maiming* or *wounding* any Officer *in attempting to go on board* any Ship or Veſſel, or *ſhooting at, maiming or wounding him when on board* any Ship or Veſſel, in the Execution of his Office or Duty, *to ſuffer Death. See alſo* 29, 32, 81. —— —— —— —— 333

91. *Offenders not ſurrendering in* 40 *Days*, after the Publication of the Order of Council *twice* in the Gazette, *or* eſcaping after ſuch Surrender, *to ſuffer Death.* — —— —— —— —— 333

92. All Perſons who ſhall *harbour, receive, conceal, aid, abet*, or *ſuccour* any Offender, after Publication of the Order of the Council in *the Gazette, &c. to be tranſported for ſeven Years*; and, if they return before the Expiration of the Term, *to ſuffer Death. See* 82. —— —— 333

93. The *Inhabitants* of every *Rape, Lath*, or *Hundred*, where any Officer, in the Execution of his Office, is *beat, wounded, maimed*, or *killed* by any Offender; *or* the Goods *reſcued* by Perſons *named* as aforeſaid, are to make good the Damages, and to pay to the *Executor* or *Adminiſtrator* of each Perſon *killed*, 100 l. and to each Perſon *beat, wounded* or *maimed*, 40 l. and for *Loſs of Goods*, 200 l. *But* it is provided that no Perſon ſhall recover any Damages for ſuch *Beating, Wounding, Maiming, or Loſs of Goods*, unleſs *within, four Days*, he cauſe Notice to be given *to two or more* of the Inhabitants, and, within *eight Days*, make Oath before a Juſtice of the Peace, *&c. But* if the Offender is apprehended and convicted of ſuch Offence, *in ſix Months after the Offence committed*, no *Hundred, Rape*, or *Lath* is ſubject to pay the 100 l. to the Executor or Adminiſtrator of any Perſon *killed* as aforeſaid. —— 333, 334

94. Any Perſon *apprehending, taking, or diſcovering, ſo that he may be taken*, any Offender not ſurrendering in *forty Days*, after he has been adverti ſed in *the Gazette*, and carrying him before a Juſtice of the Peace for *London* or *Middleſex*, is to be paid 500 l. *by the Commiſſioners* of the Cuſtoms or Exciſe *reſpectively. See* 18, 57, 71. —— —— 334

95. Any Offender, againſt whom *there is no Order of Council*, diſcovering or apprehending any other Offender againſt whom *ſuch Order has been made*, is diſcharged of his own Offence, and all other the like Offences,

FOREIGN Brandy, Rum, Arrack, *&c. continued,*
for which no Proſecution has been commenced, and is to have *his Share* of the Reward. *See alſo* 17, 67. —— —— —— *Page* 334
96. Any Perſon *loſing a Limb or Eye,* or being otherwiſe *grievouſly wounded,* in *apprehending, endeavouring to apprehend, or making Purſuit* after ſuch Offenders, is to receive from the *Commiſſioners* of the Cuſtoms or Exciſe, *reſpectively,* 50 l. *over and above* any other Reward he may be intitled to *for apprehending. See alſo* 58. —— —— —— 334
97. Any Perſon *killed in taking, apprehending, or endeavouring to apprehend, or in making Purſuit* after ſuch Offenders, his *Executors* or *Adminiſtrators* are, upon making Proof, to receive 100 l. of the *Commiſſioners* of the Cuſtoms or Exciſe *reſpectively.* —— —— —— 335
98. Any Offender *(at any Time before* the King's Order in Council be made for his *Surrendering* in forty Days) *diſcovering two or more* of his Accomplices to the *Commiſſioners* of the Cuſtoms or Exciſe, and *apprehending them, or cauſing them to be apprehended* (if they are convicted of the Offence) ſhall receive 50 l. of the *Commiſſioners* of the Cuſtoms or Exciſe for *every* ſuch Offender, and be himſelf acquitted of his Offence, and all like Offences, *for which no Proſecution has been commenced. See* 60, 67, 68. —— —— —— —— 335
99. When Ships are ſeized for *illegal Practices,* the Defendant is *liable to no Coſts of Suit,* if there was *a probable Cauſe* of Seizure. —— 335, 336
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4. The Officer muſt have Admittance at all Times. *See* No. 8. —— 379
5. —— to make *a Report,* and leave the Maker *a Copy,* or forfeit 40 s. to the Maker. —— —— —— —— 380

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7. ——— to keep *Scales* and *Weights*, and aſſiſt the Officer; or forfeit 50 l. *half* to the King, and *half* to the Informer. ——— 380
8. *Obſtructing* the Officer, to forfeit 50 l. for every Offence; *half* to the King, and *half* to the Informer. ——— ——— ——— 380
9. Glaſs-Makers in *London* and *the Country*, when to make Entry, or forfeit 20 l; *half* to the King, and *half* to the Informer. ——— 380
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JUSTICES of the Peace.

1. *Two* Juſtices *reſiding near* the Place where *any Forfeiture* is made, or *Offence* committed, are to hear and determine all Matters relating to the *Exciſe* (unleſs it be within the Limits of the *Chief Office* in *London.*) *Page* 242, 246.
2. They have Power to ſummon the Offender; to examine the Matter *upon Oath*; to give Judgment; and *by Sale* to *levy* the *Forfeiture* on the Offender's Goods; and for want of Diſtreſs may ſend him to Priſon. ——— ——— ——— ——— ——— 242
3. They may *mitigate* Forfeitures. ——— ——— ——— 242
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5. But, if the Juſtice neglect or refuſe to act for 14 *Days*, the *Sub-Commiſſioners* may hear and determine the ſame. ——— ——— 242
6. Juſtices are to meet once a Month, to determine Matters in relation to the *Exciſe*. See *Diſtillers*, 31, 64. ——— ——— —— 244
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10. To *determine* as to *Commiſſioners* and *Officers* taking Fees but from the King, *&c.* ——— ——— ——— ——— —— 244
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17. How to proceed in relation to Sweets ſent out or received without a Permit. — ——— ——— ——— ——— ——— 312
18. May convict the Buyer or Receiver of Run Goods in the Penalty of 20l. —— ——— ——— ——— ——— ——— 317
19. May determine concerning the Seizure of *Veſſels*, &c. employed in Smuggling. ——— —— ——— ——— ——— 318, 319
20. May adminiſter an Oath to thoſe they ſhall employ to view and value Seizures. ——— ——— ——— ——— ——— 323
21. May impriſon Perſons aſſembled and arm'd to aſſiſt in running Goods. 325
22. Their Power in relation to Perſons loitering within five Miles of the Sea or any navigable River. ——— ——— ——— 326

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N. B. "*Theſe Traders* are to *make Entry* and *pay off* the Duty as *Inn-keepers* and "*Victuallers*, and *Retailers of Beer* and *Ale*, and are ſubject to *much the ſame* "*Survey*, *Prohibitions*, &c. as may be ſeen in *Page* 240, &c. of *Chapter* IV."
1. *Hiding*, concealing, or conveying away from the Sight or View of the Gauger, forfeit 5 s. *per Gallon*; *three fourths* to the King, and *one fourth* to the Informer —— —— —— —— —— 272
2. *Refuſing* to let the Gauger enter their *Houſe or other Place*, and take an Account of their Goods, forfeit 15 l. for every Offence; *three fourths* to the King, and *one fourth* to the Informer. [*See* Appendix, 430, 442.] 272
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4. In the Preſence of a *Conſtable* may break open *Door*, *Houſe*, or *Ground* to ſearch for *private* and *concealed* Veſſels, Pipes, Drains, *&c.* 248, 249
5. Their *Commiſſions* to be in Force, notwithſtanding the *Commiſſioners* who ſigned them are dead or removed. ——— ——— ——— 248
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7. What ſhall be admitted as Proof of their being in *Commiſſion*. —— 322
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9. How the Officer is to make his Charge *when he miſſes any Waſh*.— 281
10. How much *Low Wines* and *Spirits* the Gauger is to charge from *Melaſſes-Waſh*. ——— ——— ——— ——— 283
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15*. May ſwear Glaſs-makers. ——— ——— ——— 380

Of the Penalties to which they are ſubject.

16. Not leaving *Weekly* with *common* Brewers a Copy of the Return they made to the *Commiſſioners*, forfeit 40 s. *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. ——— 243
17. Not attending at the *Exciſe-Office* on *Market-Days* at proper Hours, forfeit 80 l. *half* to the King, and *half* to the Informer.—— —— 243

16*. Not leaving with *Brewers* and *Retailers* Notes in Writing of their laſt Gauges, forfeit 40 s. *three fourths* to the King, and *one fourth* to the Informer.

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17*. Not leaving with *common Brewers (if it be demanded)* when they take their Gauges, Notes of each Gauge, ſetting forth the *Inches* and *Tenths* of the *Backs*, and the *Worts* of the *Tons*, and *Quality* of the *Liquor*, forfeit 40 s. and Coſts of Suit; *half* to the King, and *half* to the Informer. —— —— —— —— —— —— 248
18. Not leaving with the *Brewer* or Retailer (within 3 Days after the End of every Week) a Copy of each reſpective Charge, forfeit 10 l. *half* to the King, and *half* to the Informer. —— —— 247, 248
19. Charging any *Brewer* or *Retailer* with more than ſuch Copy contains, forfeit 10 l. *half* to the King, and *half* to the Informer —— 248
19*. *N.B.* By an Act of the 12th of *Geo.* I. no Officer or Gauger is ſubject to any Penalty for not leaving a Copy of his Charge, unleſs *the Trader requires and demands it in Writing*. —— —— —— 323
19½. Not leaving Glaſs-makers a Copy, forfeit 40 s. to the Maker. — 380
20. Being *bribed* or *corrupted*, forfeit 10 l. *one third* to the King, *one third* to the Poor of the Pariſh, and *one third* to the Informer. —— 244
21. Endeavouring to *perſuade* or *diſſuade* any Elector in Voting for a Member of Parliament, forfeit 100 l. *half* to the King, and *half* to the Informer; and are *diſqualified* for any *Employment* in the *Exciſe*, or any *Office of Truſt* under the *Crown* whatſoever. —— —— 240
22. *Taking* or *Demanding* any *Money* or *Reward* for *Bonds* or *Receipts* relating to the Exciſe from any other Perſon than the King, forfeit their Office, and alſo 10 s. for every Offence. —— —— —— 244, 246
23. *Conniving* or being *concerned* in any clandeſtine Importation of *French Brandy*, or *concealing the ſame*, forfeit 500 l. *half* to the King, and *half* to the Informer, and are *diſqualified* for any *Employment* in the Exciſe. —— —— —— —— —— 315
24. Dealing in *Coffee*, *Tea*, *Brandy*, or *Exciſeable Liquors*, forfeit 50 l. *to the Informer*, and are *diſqualified* for any *Employment* in the *Exciſe*. 323
25. The Officer *knowingly* charging Low Wines as drawn from *malted Corn*, when in Fact it is not, forfeit 10 s. *per Gallon*; *half* to the King, and *half* to the Informer, and likewiſe his Office. —— —— 281
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N. B. "*Theſe Traders* are to *make Entry* and *pay off the* Duty as *Inn-keepers* " and *Victuallers*, and *Retailers* of *Beer* and *Ale*, and are ſubject to *much* " *the ſame Survey*, *Prohibitions*, &c. as may be ſeen in *Page* 240, *&c.* " of *Chapter* IV."

1. *Hiding*, concealing, or conveying away from the *Sight* and *View* of the Gauger, forfeit 40 s. *per Barrel*, *three Fourths* to the King, and *one Fourth* to the Informer. —— —— —— —— 272
2. *Erecting*, or *uſing* any *ſteeping Tub*, or *other Veſſel* for making or keeping Sweets, *without giving Notice*, forfeit 50 l. *half* to the King, and *half* to the Informer. —— —— —— —— —— 311
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5. *Not giving Notice* to the *next Exciſe-Office*, of their Names, Place of Abode, and of the Places uſed by them for *making* or *keeping* Sweets, forfeit 20 l. *half* to to the King, and *half* to the Informer. — 313
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N. B. *Wines* made from the Juice of *Britiſh Grapes* only by the *Owner* or *Occupier* of the *Vineyard*, are not chargeable with any Duty.
7. *Refuſing* to let the Gauger enter their *Houſe or other Place*, to take an Account of their Goods, forfeit 15 l. for every Offence; *three fourths* to the King, and *one fourth* to the Informer. —— 272
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N. B. "*Theſe Traders* are to *make Entry* and *pay off the* Duty as *Inn-keepers* "and *Victuallers*, and *Retailers* of *Beer* and *Ale*, and are ſubject to *much* "*the ſame Survey*, *Prohibitions*, *&c.* as may be ſeen in *Page* 240, *&c.* "of *Chapter* IV."
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2. *Hiding*, *concealing*, or *conveying away* from the Sight and View of the Gauger, forfeit 40 s. *per Barrel*; *three fourths* to the King, and *one fourth* to the Informer. —— —— —— —— 272
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